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LESSON OF THE RUBBER STATISTICS.

WE feel that the space devoted in this issue to statistics of the crude rubber situation is well employed, for the reason that the figures are all recent, all carefully prepared, and all authentic, and that they have a meaning. They have come from many independent sources, and have not been prepared for the purpose of advancing any particular interest, or proving or disproving any theory.

They show, in the first place, that the rate of production of crude rubber is larger than at any previous period. More rubber reached the consuming markets in 1903 than ever before within twelve months. And yet the standard of prices was materially higher at the end of the year than at the beginning, and the visible supplies of rubber were exceptionally small.

There is nothing in the recent large production of rubber inconsistent with the idea that, on the whole, the natural resources are decreasing. Ever since India-rubber first came to have a commercial value the world has been growing smaller, in a sense, and its most remote recesses becoming more accessible through the extension of transportation facilities.

Charles Goodyear never heard of Manáos, and nobody in his day thought of the existence of rubber in the district of which the present city of that name is the commercial and political capital. Yet there was shipped from Manáos last year more than 40,000,000 pounds of "Pará rubber," most of it on ocean going steamers direct to New York and European ports. There has been like development, but more recent, in the African rubber trade.

There is more rubber coming out of those countries because it can be reached at less cost and in less time than formerly; there was a time when transportation rates from the upper Amazon were prohibitive. But so far as a great part of the rubber regions is concerned, the faster the product is gathered, the sooner will be the period of exhaustion. British India formerly shipped millions of pounds of rubber annually, and now only a few hundred thousands. This country once obtained more rubber from Colombia than from Pará, whereas now the Colombian output is but a drop in the bucket.

Still, there is a great deal of rubber in sight. The concern of the manufacturer at this time is not exhaustion, but the fact that, with all the advantages of commercial extension, instead of rubber becoming more plentiful and cheaper, prices go up and stores of rubber become smaller. The one consolation is the indication which these conditions afford of a steady and general demand for rubber goods, lending hope of the permanence of the industry.

A rise in price does not lessen the demand; there are not only more rubber goods bought to-day, but better goods than could be made when 60 cents a pound was a price for "Pará fine." One reason is that more people are becoming able to buy rubber goods in the countries where such goods have longest been known, and their use is being extended into new countries all the while. The outlook is hopeful so long as the world wants rubber goods; if the price of raw materials goes up it may interfere tem-

porarily with profits, but the demand for a necessity—such as rubber has become—is superior to questions of price.

And we may add that all the conditions here alluded to afford encouragement particularly to the planters and prospective planters of rubber, who will not fail to see a shortening of native supplies by the time the cultivated product can be marketed in large quantities.

REAL TEST OF THE AUTOMOBILE.

THE most informing single bit of printed matter that has come to our notice, bearing upon the development of the automobile vehicle interest in this or any other country, is a certain recent illustrated trade catalogue, the major part of which consists of photographic views of commercial vehicles, employed by leading firms in some of the larger American cities. It is not of particular concern to THE INDIA RUBBER WORLD what company is benefited by the distribution of this book. It is of interest to us for the reason that, without regard to this or that type of horseless vehicle, it gives views of vehicles in practical use —employed for reasons of economy alone, throughout the United States—under conditions which point to the future extensive employment, as a means of transportation on city streets, of vehicles without any necessity for horse power.

Questions of steam, gasoline, or electricity must be left for settlement by experts in their different fields. The point now is that the practicability of the transportation of goods in other than horse drawn vehicles has been demonstrated, and the horse must disappear, just as he disappeared on the stage coach lines on the advent of the locomotive; just as he disappeared on city streets to make place for the electric street car.

In the face of greater possible speed, greater economy, less space on the streets of cities, and increased cleanliness of the streets, the horse no longer has any standing except in the hands of horse lovers—and in another generation the number of these may be less than now. Not only in cities is this true, but in all closely populated suburban and rural communities.

This is the lesson of the latest automobile shows in America. It is the lesson of the automobile shows in Europe—whence must be transmitted to this side of the Atlantic whatever there is of merit in the mechanisms which have excited so much of interest there. It is not boastfulness to assert that whatever has been accomplished by mechanical skill in any other country can be duplicated in America; indeed the historical record shows that on this side of the Atlantic there are mechanics ready to contribute to the development of any new practical idea that promises economic returns on a scale of marked importance.

The gigantic racing machine is very well; its spectacular attractions compel the attention and admiration of the masses. The machines principally on show were very well for the pleasure carriages of the rich, who are not in the majority in any community that ever has or ever will exist. But the great test of the automobile is in the business contest in which the profits or the wages of the greatest possible number of citizens is involved, and this is in the carriage of merchandise over small distances, as in city streets.

Hence the appearance in a single trade catalogue—it doesn't matter whose—of views of half a hundred commercial wagons, owned and operated by the most conspicuous commercial firms in half a dozen of the largest American cities, and vehicles which have not been set up for purely advertising purposes, but because of economical advantages, gives this publication great practical value as demonstrating the advantage of the horseless vehicle.

And the importance to the whole to the rubber trade is that this new development in the transportation world has been possible only through the employment of rubber tires, and this development is measured precisely by the evolution of practical elements in tire construction.

THE NEW RUBBER FOOTWEAR PRICES.

THE leading rubber shoe manufacturers have announced their list and net prices to take effect on February 1. There is practically no change in list prices. At the office of the United States Rubber Co. it was stated that about the only change in their lists refers to goods packed in cartons, on which there is an advance of one cent per pair, on account of the price of the carton. All prices and discounts are subject to change without notice. A new scale of discounts has been adopted, which materially advance the cost of goods. Until May 31, 1904, the following discounts to retailers, from the lists of the United States Rubber Co., will be in effect:

First quality (except Woonsocket and Meyer).....	30@5@3%
Woonsocket and Meyer brands.....	30@10@5@3%
Second quality (except Rhode Island)...	30@5@5@3%
Rhode Island brand.....	30@10@5@5@3%
Colonial brand.....	45@5@5%

From June to November 30, 1904, or until further notice one 5 per cent. discount will be withdrawn from the list, thus continuing the policy of allowing a special discount to encourage early buying. The company's contract with jobbers has been drawn on lines similar to the one under which the company have been doing business for the past season; that is, it embodies no restriction on the prices to be charged by jobbers to retailers. As will be seen from another column, however, the shoe jobbers have again resolved on their own account to maintain prices. The following paragraph, from the company's "memorandum of agreement" covers the matter of guarantee:

IV. GUARANTEE.—In case the company shall, prior to December 1, 1904, reduce the selling price to the said purchaser of the particular brand herein contracted for below the price herein named, a corresponding reduction shall be made to said purchaser on all goods of said brand shipped or delivered to him under this contract prior to that date. The account of this brand to be taken on all the styles of this brand included in the said contract, making due allowance for all styles increased in price. This guarantee shall not be affected by the sale of out-of-style, damaged, or imperfect goods. This company may sell damaged or out-of-style goods at reduced prices, and the company's decision as to what goods are damaged or out-of-style shall be final and conclusive.

Payments for goods actually delivered to customers up to March 31 will be due on May 15; deliveries prior to November 1 to be paid for on December 15, and deliveries thereafter to be paid for on the 15th of the second month following date of invoice.

MR. PEARSON IN CEYLON.

THE Ceylon newspapers report the arrival at Colombo on December 7, of Mr. Henry C. Pearson, the editor of THE INDIA RUBBER WORLD. The Ceylon *Observer*, after an interview with Mr. Pearson, writes:

"His views of the future of the rubber industry are of interest. Mr. Pearson thinks that the danger of rubber being overproduced is infinitesimal; though there is little doubt that the high prices so long prevailing have done much to encourage planting extensions. Rubber is different, he argues, from such a product as tea—for the uses of rubber are extending year by year, and a limit of them is far from being fixed. The demand therefore, is likely to keep pace with the supply for some time to come. On the other hand, rubber is bound to become cheaper as time goes on, and rubber manufacturers are only waiting this time to be able to do more business in rubber than they can with the high prices still ruling. Mr. Pearson holds that the British planter is doing a great service to the rubber trade all over the world by his enterprise in rubber planting."

The *Times of Ceylon*, in the course of a lengthy interview with Mr. Pearson, quotes him as saying:

"An interesting point to all planters, and to all your readers, is as to whether, if everybody puts in *Hevea* here, they are going to give the world too much rubber. Now my belief is that, if they actually tried to do that, and put all the money of Great Britain into the enterprise, they could not do it. Why? Simply because the uses to which rubber is put are naturally multiplying themselves above the yearly output of crude rubber, and, with an increase, nobody knows how much more the uses will multiply. For instance, there is rubber tiling. There is nothing in the wide world that equals rubber tiling. It will outwear stone or glass. It is perfectly sanitary, and is one of the pleasantest things to walk upon. If rubber were more abundant, tons more would be used for this purpose yearly. In my judgment, there is no earthly reason why you should not go on planting just as much as you possibly can, and gathering as much as you can. - - -

"Mr. Pearson once more made light of the idea that too much rubber may be grown. 'Of course,' he remarked, 'prices will go up and prices will go down, but in my lifetime or yours there will probably never be a time when Pará rubber is not worth 75 to 80 American cents (3*s.* 4*d.*); that is fine, dry Pará rubber.'

"'How is it that Ceylon rubber gets a better price than other rubber?'

"'South American Pará rubber has from 12 to 18 per cent. of moisture in it and yours has only from ½ to 1 per cent. That comes through allowing the water to remain and sending it in that way, when the American rubber apparently has a greater weight than Ceylon Pará. Rubber importers in England and America were accused of storing the rubber in wet cellars for that purpose. A pound of your rubber means more real rubber than a pound of South American rubber because the latter is part water.'"

Details were given of Mr. Pearson's plans for visiting typical rubber estates in Ceylon and the Malay states and afterwards for a trip to Manila and Yokohama, and return to the United States across the Pacific. Dispatches received from Mr. Pearson indicate that his program is being carried out generally as indicated.

It has not been mentioned before in these columns, but Mr. Pearson has been making a trip around the world to study the progress of rubber planting, with a view to recording his observations for the benefit of THE INDIA RUBBER WORLD'S readers.

NEW TRADE PUBLICATIONS.

THE FIRESTONE TIRE AND RUBBER CO. (Akron, Ohio) have issued the most elaborate tire catalogue of the season. A large amount of its space is devoted to illustrations, beginning with a view of their plant, which is stated to be the largest in the world devoted exclusively to the manufacture of solid rubber tires, followed by views of their selling agencies in various cities. Next come views of heavy commercial vehicles of various types, employed by nearly fifty firms in various parts of the country, including wagons well known to all who are familiar with the streets of New York and Chicago, all using Firestone side-wire tires. There are also views of several large pieces of fire apparatus in several cities, equipped with the Firestone tire. Several pages are then devoted to testimonial letters from business firms, fire department officials, etc., reproduced in *fac simile*. The remaining pages are filled with descriptions of the distinctive features of this tire, with suitable illustrations. [12″ × 9⅛″. 40 pages.]

INDIA RUBBER CO. (New Brunswick, New Jersey) issue a catalogue of the various types of tires which they are manufacturing, and which includes practically all the styles of rubber vehicle tires now marketed. Reference is also made to single tube bicycle tires and bicycle sundries. [5⅝″ × 8½″. 16 pages.]

MERCHANTS RUBBER CO.—William Morse, president (New York) issue an illustrated catalogue of Rubber and Rainproof Clothing, which they carry in connection with rubber boots and shoes, dated January, 1904. It embraces a full line, and is definite in the matter of descriptions, besides giving prices. [5″ × 6¾″. 29 pages.]

THE B. F. GOODRICH CO. (Akron, Ohio) issue a booklet entitled "Six Thousand Miles of Triumph for Goodrich Clincher Automobile Tires," referring to the tour recently made by Dr. H. Nelson Jackson from San Francisco to New York, over a zigzag route and on roads often of the most trying character. The two tires on the front wheels came across the continent without change. Six Goodrich tires in all were used on the two rear wheels. A number of half tone views of scenes along the route are given. [5⅜″ × 6¾″. 16 pages.]

A VERY extensive and complete catalogue of rubber toys (*Gummi Figuren*) is that of the HANNOVERSCHE GUMMI-KAMM CAMPAGNIE, ACTIENGESELLSCHAFT (Hanover Rubber Co., Limited), received through their American agents, George Borgfeldt & Co., of New York. Here are shown in great variety, dolls and figures of animals and birds—in greater variety, in fact, than are made elsewhere than in Germany—and also imitations of fruits and other objects, all colored in the representation of nature. [10½″ × 13½″. 21 double page plates.]

THE DIAMOND RUBBER CO. (Akron, Ohio) have got out a booklet with the title "The Greatest Thing in Motordom," devoted to recent records in automobiling in which "Diamond" tires figured. It forms an interesting historical record. Besides the automobile views, the illustrations include views of the company's factory and nine of their branch stores, in as many cities. [4⅝″ × 5⅞″. 32 pages.]

BOWERS RUBBER CO (San Francisco, California) issue their Catalogue No. 15, of Mechanical Rubber Goods, comprising rubber and cotton hose for dredging, mining, fire department, steam, air, oil, wine, and water conducting, including wire wrapped and armored hose; rubber belting, concentrator belts, sheet and piston packings, rubber mats and tiling, and a variety of molded specialties, together with the firm's patented reel and other hose accessories. The catalogue is well illustrated and includes prices. [5¼″ × 7¼″. 70 pages.]

THE CONGO RUBBER PROSPECT.

IN their annual review of the Antwerp rubber market, for 1903—the statistical details of which appear on the market pages of this Journal—Messrs. Grisar & Co., brokers, say:

"In spite of the ever increasing transportation facilities, and the growth of commercial relations with the interior of the Congo Free State, the total amount of the importations of Caoutchouc from the Congo has scarcely increased for a period of several years.

"We mentioned in our last annual review the preservative measures enacted by the government of the Congo Free State for the purpose of reëstablishing the forests which produce Caoutchouc at the same rate, and according to the supply furnished from them. It is known, that there must be planted annually a number of Caoutchouc trees, or *lianes*, which must not be less than 500 plants per ton of Caoutchouc gathered during the same period of time. The *personnel*, which was first considered necessary to take charge of the carrying out of the legal provisions relative to this subject, have been doubled. This permanent supervision, which is exercised with the greatest vigilance, has succeeded in calling attention to certain negligences as well as several infractions of the law respecting the replanting of Caoutchouc trees, the perpetrators of which, in addition, have been made subject to judiciary actions. The greater number of the guilty parties were fined in amounts varying from 500 to 6000 francs, in addition to the obligation of setting out plantations, which they had failed in doing.

"The public prosecutor, upon requisition from the forest officials, who were invested with the necessary powers for this purpose, has likewise been compelled to take up the subject of the extraction of Caoutchouc, where in certain localities the native gatherers had still disregarded the law, which does not authorize the gathering of Caoutchouc from trees or *lianes*, except by means of incisions. It is to be noted that cases of this character are becoming more and more rare, as a result of the efficacious and constant watchfulness to which the native gatherers are subject.

"It is, besides, appropriate to note that the production of Caoutchouc has been restricted throughout all the districts of the state, with the view of not bearing too hard upon the native gatherers, and for the purpose of not prematurely exhausting the forests, and with the means to proceed with methods towards the reasonable reëstablishment of the plantations of Caoutchouc producing plants.

"We note that the agents of the Congo Free State, as well as the greater number of the large Congo commercial firms, are everywhere independently undertaking to carry out the laws imposed for cultivating large plantations of Caoutchouc producers.

"Business in Caoutchouc, and cultivation of Caoutchouc producing plants being thus regulated under wise and foresighted conditions, it is not rash to affirm that from this point of view the future of the Congo Free State can be looked forward to with the very greatest confidence.

"At the risk of repeating ourselves, we again state that every effort should be made in Africa, relative to the betterment of the quality of Caoutchouc.

"In effect, the good quality of a lot is principally due to the care which is taken to thoroughly dry through the Caoutchouc. As a result of this precaution it contains a minimum amount of moisture, with less risk of becoming pitchy, and consequently it obtains the most remunerative prices. It suffices for us to state that the best Caoutchouc, if badly dried and hastily shipped, is worth here 30 to 35 per cent. less than the same merchandise when well dried. For this reason, as is shown in the table annexed hereto, there is an increase in price of 19 to 20 per cent. in the well dried varieties, while the other varieties, containing much moisture, have been less influenced, to a certain extent, by the rise in prices.

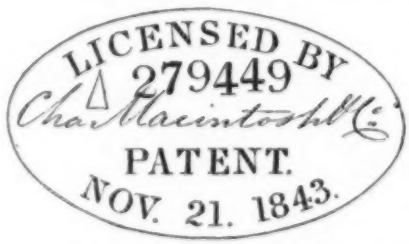
"The same enlightened attention brought to bear in the harvesting, and the most consciencious manipulation of the article, concerning everything pertaining to the method of packing for shipment, has as a result produced more homogeneous products, and being in better condition, sales have been concluded with the greatest facility.

"In the Kasai region, among others, a noticeable change for the better has been found in the quality of the gum, as a result of the Kasai Syndicate's efforts, and in addition these products to-day have the support of the producers. Unfortunately we cannot say as much regarding the supply from the Upper Congo (white or bleached gums); from this place we have received a series of shipments in bad condition, very pitchy, and which have not been favorably disposed of. As to the methods practiced during the year under consideration, they have on the whole been very satisfactory.

"From the commencement of the year prices have pursued an upward course, establishing an average rise of 10 per cent. up to April. After a stationary period the market again took a strong upward tendency in July and August, with a progressive increase up to October; at this time the prices for Pará rubber strongly reacted as a result of heavy receipts, bringing down in their fall the various varieties, which fell about 9 per cent. We close the year at about an average run of 16 per cent. better than those at the end of 1902."

LICENSED BY MACINTOSH.

IT will be remembered by the historically inclined that the Goodyear patent in the United States for a combination of rubber, sulphur, and heat, was almost paralleled by the Hancock patent in England, both inventors reaching the same result at about the same time and without knowledge of each other's invention. Among the first vulcanized rubber goods made in England were those manufactured by Charles Macintosh & Co., in which firm Hancock had an interest. This firm soon licensed other companies to manufacture under the Hancock patents, the appearance of the license stamp being shown in the reproduction that is printed in connection with this article. These stamps were printed on gummed paper and were attached to the goods that the licensees marketed.



A NEWSPAPER report from Salt Lake City, to the effect that John Beck, a mine owner of Utah, has formed a company to extract rubber from a shrub growing in that state, said rubber having proved to be of excellent quality, was shown to Mr. B. G. Work, vice president of The B. F. Goodrich Co. He said that while he had seen many such reports from different parts of the west, he had never seen any of the rubber. No rubber manufacturer in Akron seems to have any faith in the alleged discoveries of rubber out west.

PAPERS ON AIR BRAKE HOSE—III.

AIR BRAKE HOSE IN SERVICE.

ELABORATE investigations have been made by the experts of many American railways, to determine the duration of service and the causes of failure in air brake hose. A matter of considerable expense depends on the relative economy of high grade specification hose and the ordinary twenty-four months' guarantee hose. Such of these investigations as are available prove to be very interesting and valuable. Abstracts and summarized conclusions derived from the reports of certain of these investigations will be given here.

Recent tests and comparisons made on the Atchison, Topeka and Santa Fé railway system extended over a period of four months, and included the history of 5372 pieces of 1¼ inch, 4 ply, air brake hose, costing 41 cents per foot and guaranteed for 24 months' service. Analysis of the data obtained shows that of the total number of pieces under test, 39.5 per cent. (2116 pieces) fulfilled the guaranteed two years' service; 6.5 per cent. (349 pieces) were serviceable beyond the guaranteed limit; and 54 per cent. (2907 pieces) failed for various causes, of which two thirds were largely preventable on the part of the railway authorities.

The following table gives a classification of causes of failure:

FAILURES DUE TO INFERIOR HOSE.

Failures which makers must replace	414
Failures not recoverable from makers, owing to neglect to cancel dates on hose	560
Total	974

FAILURES CHARGEABLE TO ABUSE.

Malicious cutting	103
Run over by carwheels	86
Mashed by buffers or couplers	76
Cut by gravel or cinders under nipple	194
Using hose for other purposes	168
Trains parting with hose coupled	162
Chafing	262
Kinking on angle cock	118
Hose being painted	86
Burnt in wrecks, etc.	11
Cut by nipples while being mounted	60:
Undeterminable causes	66
Total	1933

SUMMARY.

Failures due to inferior hose	34 per cent.
Failures chargeable to abuse	66 per cent.

The Santa Fé report discusses very fairly the preventable causes of the failure of air brake hose, with recommendations designed to greatly reduce the reckless waste of over 50 per cent. Its general conclusions are thus summarized:

The average life of the hose which failed to give 24 months' service, was 11⅛ months. The average of all hose removed on the system (including that from foreign cars—*i. e.*, cars from other roads) was 23.8 months. Certain superior grades were found to average 38, 51, and 61 months. This high grade hose came from foreign cars and failed from abuse and old age. If a marked improvement cannot be effected in the matter of reducing the amount of abuse inflicted on the hose, it would hardly be advisable to purchase a better grade of goods. The final conclusion is: "If, however, we can stop the slaughter, we can save money in the long run by buying a better grade"—in other words, a grade better than that ordinarily furnished under 24 months' guarantee of service.

ABOUT a year ago a series of careful tests of various makes of air brake hose was completed by the Testing department of the Chicago, Burlington and Quincy railroad, of which the following is a condensed account:

The test consisted in obtaining and placing in service on suburban trains, where the hose could be carefully watched, 12 samples of each of six leading makes of hose (72 samples in all). Care was taken to select different grades, as well as different makes, including some of the most expensive as well as some of the cheapest hose on the market, also several samples representing intermediate and varying values. One piece of each make was subjected to careful laboratory tests, such as are ordinarily employed, showing the bursting pressure, friction, stretch, and set of rubber, and the remaining samples were put into service. At the end of six months one piece of each make was removed and retested, with the idea of determining the rate of deterioration in service, and this process was repeated at intervals of six months until all of the test hose had been removed.

During this test, which extended over 2½ years, it was necessary to remove 40 per cent. of the hose on account of its being worn out and injured; thus 60 per cent. was actually removed and retested. It is probable that if none of the hose had been removed for testing a considerably larger percentage would have been removed on account of being worn out before the test was completed. It seems safe to conclude that in a period of 2½ years, at least 50 and perhaps 60 per cent. of the air brake hose has to be replaced on account of being worn out. The samples so removed are worn out by mechanical injury and not on account of decay, either of rubber or canvas. This was equally true of the low priced as well as the high priced hose.

The tests indicated that there was not a very great falling off in the bursting pressure or the stretch of the rubber tube in the course of 2½ years, although there was considerable difference between the results obtained in the tests of the hose of different grades. It also developed the interesting fact that, although some of the more expensive brands, when new, showed a very high friction test, this deteriorated very rapidly and in most cases had fallen very low within one year's time of service. The tests also indicated that the cheaper grades of hose, having originally low friction, and low stretch of rubber, held up in the bursting pressure as well as the samples of higher priced hose that originally showed high friction and high stretching tests.

The conditions of the samples when removed showed that the life of air brake hose is determined in practically every case by mechanical injury, and not by deterioration of the hose, and the conclusions from this test were that it is not necessary or desirable, from the standpoint of expense, to buy hose showing high friction and high stretching qualities, since such hose costs considerably more than ordinarily well made hose, without giving much if any increased service.

In this connection it is interesting to note a few specimen facts brought out by the tests. Just as good service was obtained from a hose which showed a friction of 1½ seconds in the original piece as from a much more expensive hose which showed a friction test of 40 minutes. Also, the hose which gave an original friction test of 40 minutes showed at the end of a year only *35 seconds*; while the hose which gave an original friction test of 1½ seconds, gave a friction test of one second

at the end of the first year, the same test at the end of two years, and a test of one half second at the end of 2½ years. The more expensive hose gave an original stretching test of 4½ inches, with a set of $\frac{3}{32}$ inch, and at the end of 16 months a stretching test of 3¼ inches with a set of ⅛ inch. The cheap hose, when new, gave a stretching test of 2¾ inches, and a set of $\frac{1}{16}$ of an inch, and at the end of 18 months it gave a test of 2½ inches and a set of $\frac{1}{32}$ inch.

These tests seem to justify the conclusion that a medium or even low priced hose with a good bursting test is the most economical in service, although care should be taken not to go to extremes in the matter of cheapness.

The Chicago, Burlington and Quincy specifications No. 15-A for air brake hose are based on the results of the above described test. Compared with those issued by many other roads it will be noted that the stretching test prescribed for the inner tube is very moderate, and that no friction test is called for, while the bursting test required is also moderate and designed to secure the proper quality of duck and care in making the hose. The life of various standard makes of air hose determined by tests on other roads varies from 12 to 38 months and averages 24 months.

THE SPECIFICATION CONDENSED.

These specifications prescribe that air brake hose shall be 4 ply and the inner tube not less than $\frac{1}{32}$ inch thick; each length to be 22 inches (¼ inch variation allowed), and capped with rubber, vulcanized at each end; wrapping to be frictioned on both sides, with a distinct layer of rubber between each two plies. Inside diameter not to be less than 1¼ inches nor more than $1\frac{5}{16}$ inches. Standard lengths of hose to be labeled to permit of future identification [See THE INDIA RUBBER WORLD, January 1, 1903—page 115]. *Bursting Test.*—A section of 3 inches to be cut from the test hose and the remaining 19 inches mounted on standard nipples, where it must stand a hydraulic pressure of 150 pounds per square inch, without expanding more than $\frac{1}{16}$ inch in diameter, and subsequently a hydraulic pressure of 500 pounds per square inch for 10 minutes, without bursting. *Stretching Test.*—A section of inner tube 1 inch wide is stretched 300 per cent. and immediately released; marks 2 inches apart are then placed on it, and the rubber stretched until the marks are 8 inches apart, held for 10 minutes, then released for 10 minutes, and the elongation noted. The rubber must stretch 300 per cent. for 10 minutes without breaking, and must not take a permanent elongation of more than ¼ inch.

The opinion seems to prevail among railway authorities that a fair statement of the service obtainable from air brake hose, would be that, irrespective of quality, one third to one half of it gives satisfactory service, while the balance falls short of this, largely by reason of preventable causes, due principally to carelessness in the repair shops and on the road.

Among these preventable causes of injury and ultimate failure, perhaps that of most common occurrence is careless workmanship in inserting couplings and nipples, resulting in damage to the inner tube by cutting and to the duck plies by overstraining. In mounting air brake hose the ordinary procedure consists in holding the casting in a vise, cementing the nipple end with a rubber solution to aid in crowding the hose over it by a quick thrust of the same assisted by the weight of the workman's body. There can be no objection to this method of doing the work, provided the nipple is smooth and not so large as to overstrain the duck. Herein is found the importance of specifying enlarged ends which, by conforming approximately to the taper of the nipple, is relieved of strain and much of the consequent liability to injury. A very practical invention bearing on this point is the combination of the enlarged end with a thickening of the inner tube at the end of the taper, thus forming a reinforcement or cushion of rubber to receive the wear caused by bending about the end of the nipple. Figure 1 illustrates this arrangement which has been patented by The B. F. Goodrich Co. (Akron, Ohio). Its practical value has been demonstrated in service, the "Akron" brand air brake hose giving from 36 to 40 months actual service.

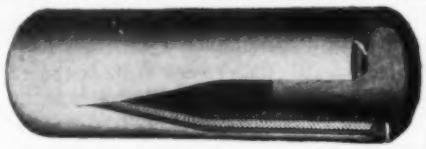


FIG. 1.

A simple mechanical means for coupling air brake hose is illustrated in the diagrams of Figure 2 which show the apparatus in use by the Chicago, Milwaukee and St. Paul railway. The upper portion of the figure shows the machine in place. A crosshead, connected to a hand lever, carries half an air brake hose coupling to serve as a holder for the part to be inserted in the hose, which is held for that purpose in a vise arrangement shown clearly in the lower half of the figure. The vise is held securely shut on the hose by means of a link arrangement locked down by a cam lever which throws up over the handle portion shutting on the hose. With this arrangement a man can couple about 140 pieces of hose per day, without the great effort necessary when done by hand.

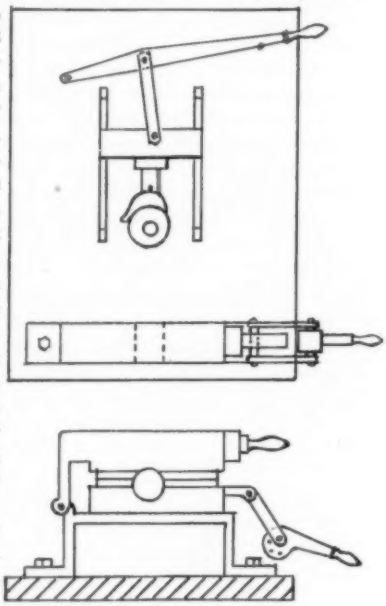


FIG. 2.

Figures 3, 4, 5 and 6 illustrate typical injuries to air brake hose. The first of these (Fig. 3) shows a break caused by injury to the inner tube by the insertion of the nipple. That caused by separating cars without uncoupling the air hose is shown in Figure 4. In this instance the friction uniting the plies was evidently low grade, permitting the bias duck to pull out in the form of a curl like a shaving. A better quality friction would have held the plies so firmly united that the hose would have broken abruptly. Figure 5 shows the effect of chafing. In this case the rubber

FIG. 3.

FIG. 4.

cover has been largely removed and the various layers of duck exposed and in one place the wall of the hose completely cut through. Faulty workmanship is shown in the hose illustrated in Figure 6. The break occurred at a seam in the duck which had not been lapped sufficiently to secure a proper hold. There is no reason why the joint in the duck should not be as strong as any other portion, if carefully made and overlapped one inch. In the example illustrated the lap djd not exceed a half inch.

The matter of flexibility in air hose is of especial importance during the extreme cold weather experienced in the northwest. The effect of frost in stiffening hose to the point of rendering it liable to breakage by bending is given as the reason why the C. M. and St. P. railway company specify three ply hose, $\frac{1}{32}$ inch thickness of wall in place of the customary four ply. It is found that this construction gives ample strength and flexibility without kinking.

FIG. 5.

The practice varies in regard to the plies required in air hose. Some of the foremost roads of the country find three ply hose satisfactory and gain in the matter of first cost over four ply.

Some roads secure a short additional service from broken air hose by cutting out the unbroken part when sufficient length can be got intact and uniting two such pieces with an iron pipe nipple. This is not only questionable economy, but very inconsistent practice when compared with the same road's specification requirements, designed to promote safety as well as economy.

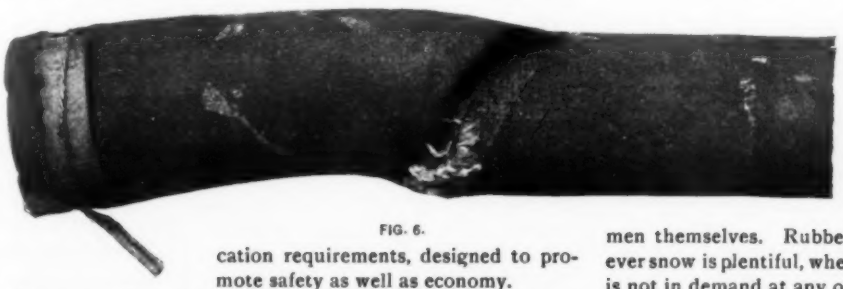


FIG. 6.

A very excellent method of securing service from the material of discarded air hose is that adopted by one of the leading American roads. The disused hose is split lengthwise on one side by means of a circular saw. In this condition it is passed under a power punch through an attached device which spreads open and holds flat the split hose as it passes under the punch. In this way a series of nine or ten locomotive throttle valve packing rings are obtained from each hose and, owing to the high grade of the hose material, a very superior quality of packing is thus secured and the amount of junk rubber to be sold is considerably reduced.

The absence of chemical requirements in the specifications of hose is due to the practical impossibility of prescribing them, and even more to the fact that the quality of the rubber employed is effectually regulated by the simple physical tests friction, strength, stretch, and set. The requirement forbidding the use of substitutes meaning, doubtless, the sulphurized oil products, is rightly insisted upon, although a reputable manufacturer would not be likely to use them. Refusing the right to use reclaimed rubber is not so necessary. It is an undoubted fact that the intelligent use of high grade reclaimed rubber results in a much better compound for the money than can be produced without its aid. This is because of the fact that it is essentially a fair quality of vulcanizable stock, possessing the physical properties of new rubber to a marked degree. There is no adequate reason why its use should be denied to the manufacturer of air brake hose if the resulting stock fulfills all the requirements of the physical tests specified; a condition which is well within the bounds of possibility.

WHY PEOPLE BUY RUBBER SHOES.

THE following paragraph, which appeared in the New York *Sun* while the streets were covered with a foot of snow, repeats an assertion which appears year after year, to the effect that people buy rubber shoes to cover defects in their leather footwear:

> The demand for overshoes is one of the best indications of what the times may be. When money is plentiful there are few persons who want them, for the reason that they are able to buy new shoes. When money is scarce, however, the price of overshoes is better suited to the means of most persons than the purchase of a new pair of shoes would be. The proprietors of shoe stores are thus able to keep a more than usually accurate tab on the state of the public prosperity. But nobody could fail to regret that the real purpose of over shoes should be so much misunderstood that they should be used only when there are weaknesses in the under coverings.

According to this idea, the rubber shoe manufacturers should have their harvest during hard times—the poorer the people, the better for the rubber trade. Such, however, is not the observation of the rubber men themselves. Rubber footwear is in good demand whenever snow is plentiful, whether the people are rich or poor, and is not in demand at any other time.

GEORGE ADE, in his inimitable "Fables in Slang," has coined a new phrase, which shows an intimate knowledge of the rubber business. He calls rubberers "Goodyear specialists."

RUBBER AND TEXTILE TESTING MACHINES.

THE textile fabrics embodied in rubber goods are designed to give the finished product the element of strength required to adapt it to the conditions of service. Hose for all purposes, and belting, are notable examples of rubber goods designed to withstand heavy strains in service. The element of strength is also important in such lines as footwear and clothing, carriage cloths, tires, and many other lines which might be specified.

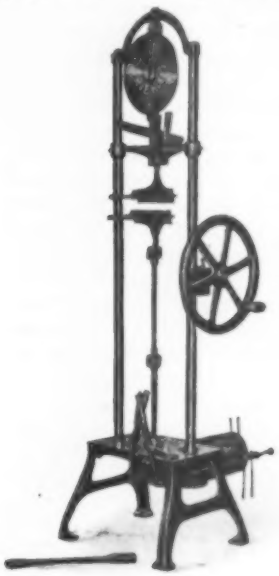


FIG. 1.

A convenient and accurate mechanism by means of which exact knowledge of the strength of fabrics can be ascertained is very necessary. Several machines specially adapted to this work are to be had in the market. Among these are the "Arch power" machine of Riehlé Brothers, and a vertical form made by the Falkenau-Sinclair Co., both of Philadelphia. Figure 1 represents the first of these testing machines. It has a capacity of 600 pounds pull and may be operated by either hand or belt power. The power mechanism is extremely simple, consisting of a worm and gear driven by pulleys through straight and crossed belts. A conveniently arranged lever disengages the worm and the machine can then be operated by throwing the miter gear into mesh and using the hand wheel. The strain is measured by a standard spring balance and the recoil is taken up by a pair of wedges which follow the downward pull and prevent shock to any extent. An idle index indicates the maximum load or breaking strain of the specimen. The machine as illustrated is designed and constructed for the bureau of equipment of the United States navy yard at New York. It is operated by a one sixth horse power motor.

The vertical form of machine as built by the Falkenau-Sinclair Co. (Fig. 2) is very compact and arranged for hand power operation only. The strain is applied to the cloth by means of worm gearing, and is indicated by a maximum hand on the dial of a spring balance, and the recoil of the balance is obviated by a following up wedge all precisely as in the "Arch power" machine. The hand lever shown immediately under the dials in both forms of machine is for controlling the release of the spring of the balance when the wedge system in the rear is disengaged. For rapid work the worm can be thrown out of gear and the screw run up or down rapidly by the hand wheel. The machine is built in two sizes for 200 or 600 pounds capacity.

Another machine of horizontal form, built by the same concern, is specially designed for applying a tensile test to rubber. Figure 3 illustrates this machine as used, somewhat modified, in the testing room of the bureau of equipment at the Navy Yard. This machine consists of a bed plate, movable upon which is a spring balance and a grip for the test piece, and between them a removable wedge which follows up the pull on the balance and holds it at the maximum strain when the break occurs. These movable parts are made so by being mounted on small trucks or wheels to reduce friction. The strain is applied through a screw by means of power or the hand wheel at the end of the machine.

FIG. 2.

There is also a hand wheel at the side which operates a rack and pinion for moving the carriage rapidly to its original position after a test has been made. Opposite the movable grip is a fixed one, which, however, can be made movable by removing a stud. In this way tests for stretch and set may be made by attaching dead weights to the hook by means of a cord passed over the sheave. The machine is also provided with a graduated scale and pointers with which the original reference marks on the test piece may be followed as the specimen is stretched and thus the elongation be determined.

Numerous careful tests, by the bureau of equipment, Brooklyn navy yard, under widely varying conditions of dampness of the goods and the hygrometric state of the air have demonstrated that the only reliable tests of the strength of textiles are those obtained where the pieces have been prepared test subjected to 150° F. for six hours and are taken singly from the drying oven and promptly broken in the machine. These are the specified conditions of test under which all grades of duck are purchased for the United States navy.

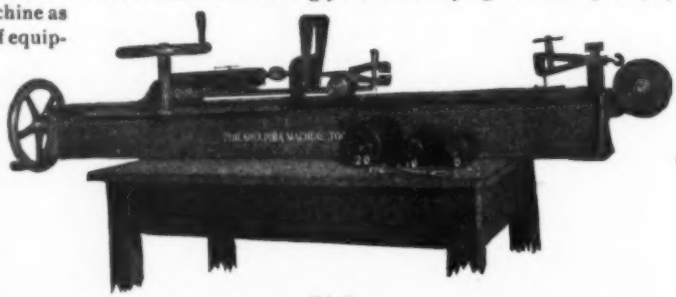


FIG. 3.

PORTABLE PNEUMATIC TOOL OUTFIT.—There is in use on the Great Southern and Western railway, in England, a car designed for repairs to bridges and other work along the road, equipped with an outfit of pneumatic tools supplied by the International Pneumatic Tool Co. The outfit embraces a steam driven air compressor, 12 HP. boiler, an air reservoir 6 feet long and 2½ feet in diameter, and an assortment of hammers, riveters, drills, and the like, together with several lengths of metal protected rubber hose.

VULCANIZATION AND VULCANIZING TEMPERATURES.*

IF it were not known, as the result of many chemical analyses, that in vulcanization there is a chemical union of Rubber and Sulphur, we would be justified in inferring that the union is the result of a chemical process, from the fact that it proceeds in accordance with rules which observers have deduced from a large number of observations of chemical processes in general.

The Rubber hydrocarbon is composed of 10 parts of Carbon and 16 parts of Hydrogen, or a multiple of these numbers, and therefore belongs to that class of hydrocarbons that are able to form combinations. Hydrocarbons having a much larger proportion of Hydrogen do not form addititive compounds and are therefore called saturated hydrocarbons. The union of Rubber and Sulphur is brought about by the influence of heat in the same manner as many other sulphides are formed. The union also proceeds more rapidly with each increase of temperature, and more slowly with each decrease of temperature, which is a rule applicable to chemical processes in general. Neither the Rubber that has been vulcanized nor the Sulphur of combination is any longer soluble in their usual solvents. The freezing point of vulcanized Rubber is very much lower and the boiling point much higher than the freezing and the boiling points of crude rubber—if Rubber can be said to have a freezing or a boiling point. The lowering of the freezing point of a substance and the raising of its boiling point is a reliable indication of a change in the chemical condition of the substance.

In the sense that the boiling point of a substance is the temperature of ebulition, rubber has no boiling point. But in the sense that the boiling point is the temperature at which the substance decomposes, a sense in which it is often used, both crude and vulcanized Rubber have boiling points.

In the sense that water freezes and forms ice, crude Rubber has no freezing point. But it stiffens as the temperature falls near the freezing point of water and has all the physical appearances of having been frozen. But, being an uncrystallizable substance, it cannot crystallize as water does when it freezes. When the temperature rises above its freezing point, there is no change of form, as when ice turns to water, or when a metal melts. It merely resumes its normal condition without having its characteristics changed in the slightest as the result of the freezing. This normal condition is retained, when subjected to a rising temperature until, at a temperature no higher than those employed in vulcanization operations, its structure changes and the substance decomposes.

As soon, however, as masticated Rubber is compounded with a proper quantity of Sulphur and Litharge for the temperature to which it is to be submitted, there is immediately a change in its characteristics. It freezes at substantially the same temperature as before, showing that in this respect, Sulphur has yet brought about no change. The boiling point, however, (temperature of decomposition) of the compounded Rubber is immediately changed, and the compound cannot be injured by any proper vulcanizing temperature to which it may be submitted. But if the masticated Rubber, before the addition of Sulphur, be submitted to the same temperature, it decomposes and is no longer Rubber, whatever may be its constitution.

The compounded Rubber, it is true, softens at first under the influence of a rising temperature, but it does not decompose, and as soon as the heat is removed, it either assumes its normal condition or is partially vulcanized. If the heat be continued long enough at proper temperatures, the compound gradually becomes vulcanized Rubber. But, at no time after the Sulphur is added to the masticated Rubber until vulcanization is complete, does the action of heat affect the compound injuriously.

Thus, Sulphur has a very marked effect on Rubber immediately on being incorporated with it; or, in other words, immediately on being brought into close contact with every portion of it. What is the nature of this effect? What can it be, except that the change which we call vulcanization begins with the incorporation of the Sulphur? How else can the action of the Sulphur be explained?

If Rubber vulcanizes at low temperatures, this effect of Sulphur is easily understood. But, if it only vulcanizes at high temperatures, as some contend, the effect produced by Sulphur at lower temperatures cannot be explained. Theoretically, there is no reason to believe that Rubber does not vulcanize at low temperatures. Because we have observed it to take place only at high temperatures, is no proof that it does not take place at lower temperatures. "We have in general no ground for supposing that any chemical process which takes place at a higher temperature cannot take place at a lower." To illustrate this, let us consider the familiar subject of combustion. We observe it taking place rapidly at high temperatures. But because we do not observe its progress at lower temperatures we cannot say that combustion cannot then take place. The fact is that "no temperature can be found at which combustion just begins, and such that just below this point no combustion takes place at all." And so it cannot be said that any temperature has yet been found at which vulcanization just begins and such that just below this point no vulcanization takes place at all.

It is therefore desirable to know at what temperatures Rubber is commonly vulcanized on a large scale, and then to ascertain by careful experiment the range of temperatures in which it readily vulcanizes. Regarding the exact temperatures at which Rubber is actually vulcanized on a commercial scale, very little is known even by the most careful operator, when the steam or the dry heat process is used. In vulcanizing by either of these processes there is generally no definite relation at all between the temperature indicated by the thermometer and the actual temperature of the Rubber undergoing vulcanization, and from the nature of the case, as these operations are usually conducted, there can be none.

Such operations are carried on in large closed cylinders, often 60 feet long or longer, or in large close rooms often 12 feet wide and 25 to 30 feet long. In the former case live steam is admitted to the cylinders generally from two inlets, and in the latter case the chamber is heated by coils of steam pipe which are a little below the level of the floor. It is evident that one or even two thermometers cannot indicate the correct temperature of all parts of either these steam or dry heat vulcanizers, *unless the vulcanizing medium be kept in rapid circulation, even when no articles are being vulcanized.* The loss of heat by constant radiation requires a constant supply, which tends to maintain the unevenness of the temperature. But if the chambers be filled with goods, say hose on hollow iron hose poles in the steam vulcanizer and boots and shoes on wooden lasts in the dry heat

vulcanizer, the conditions are such that there must be a great disparity between the temperature of the vulcanizing atmosphere and that of the goods to be vulcanized. An ordinary charge for the dry heat vulcanizers would be perhaps 10 to 15 tons, including the cars, lasts, and the boots and shoes themselves, and perhaps 5 to 10 tons in the steam vulcanizer, including the iron poles on which the hose is made. This great mass of material must in either case be brought to the temperature at which the goods are vulcanized and maintained there till the operation is complete.

If the surrounding atmosphere be at the same temperature as the contents of the vulcanizers, it is evident that the temperature of the contents will remain stationary. If the temperature of the atmosphere be but a little above that of the contents, it is evident that the temperature of the contents will rise extremely slowly. In order to raise the contents within a reasonable time to the temperature at which they are vulcanized, whatever that may be, the indicated temperature of the surrounding medium must at all times be considerably in excess of the actual temperature of the contents. The rubber articles themselves cannot be heated any faster than the iron hose poles, or the wooden lasts of the boots and shoes, which are very poor conductors of heat. At the beginning of the operation this disparity in temperature is of necessity great, but it gradually grows less and less until at the end of the operation it is not very large. But in no case, as such operations are usually conducted, is the rubber vulcanized at the temperature indicated by the thermometer, but at a considerably lower average temperature. It is not, however, necessary that the thermometer should indicate the exact temperature of the rubber articles. When the thermometer indicates a certain temperature, experience teaches how long it is necessary to subject the articles to that indicated temperature, regardless of the actual temperature of the articles themselves.

In order to know the exact temperature at which rubber is being vulcanized, the bulb of the thermometer must rest on the rubber and be partly imbedded in it. A difference of a few inches will often show a surprising difference in the temperatures indicated by two thermometers, one of which indicates the temperature of the vulcanizing chamber, and the other that of the rubber itself.

Conflicting statements of different writers as to the temperatures as to which rubber vulcanizes may be partly reconciled by bearing in mind that some may have given the temperature of the vulcanizing chamber, and others the exact temperature of the rubber while undergoing vulcanization. In some instances, however, such statements can be explained by neither of these hypotheses, but only on the supposition that they were based on reports made by persons without practical knowledge of the facts. In Seeligmann's excellent work on "Indiarubber and Gutta Percha," occurs the following statement: "Heinzerling has satisfied *himself* by a series of direct experiments that when rubber is submitted to a temperature of 100° C. (212° F.) for four or five hours there is no trace of vulcanization. In order that vulcanization may take place, it is *indispensable* to always exceed the melting point of Sulphur, that is to say 113° C. (235.4° F.)". It is difficult to understand the basis of the latter statement, for every manufacturer of experience knows perfectly well that rubber vulcanizes below 235.4° F. Seeligmann could not have made this statement as the result of experiments made by himself, but must have relied on reports of some person who was himself ignorant of the facts. Heinzerling's statement is not correct, though it may be based on a slight foundation. A compound consisting of 12 pounds well dried fine Pará rubber, 6 pounds litharge, 6 pounds whiting, and 6 ounces of Sulphur, a very common compound, vulcanizes rapidly in ten hours by the dry heat process at 212° F., and shows signs of vulcanization when it has been submitted to that temperature for four or five hours. But, if the same compound be submitted to the same temperature surrounded by metal and the air be carefully excluded it vulcanizes well in four and one half to five hours. Signs of vulcanization will be observed after about two and one half to three hours. If, however, the percentage of Sulphur in the compound be increased from 3 per cent. to 7½ per cent., thorough vulcanization will take place at 212° by the dry heat process in five hours. If the air of the vulcanizing chamber be impregnated with Sulphur, by sprinkling a little of it on the floor, then the compound containing 3 per cent. of Sulphur vulcanizes readily at 212° F., in three hours, and that containing 7½ per cent. in two and a quarter hours. The latter compound will be fairly vulcanized in about an hour and a quarter. Heinzerling therefore could not have been very thorough in his experiments. Any person wishing to test these statements should use an accurate chemical thermometer and be careful to keep the bulb partly imbedded in the rubber so that the exact temperature of the rubber will be indicated. No theory can be consjdered established from the result of one or two experiments. In order to establish any theory a large number of experiments under varying conditions are absolutely necessary.

In considering the subject of vulcanization, the very foundation of any investigation should be the temperatures at which the rubber vulcanizes. Any error in this respect is inexcusable, as all theories based on such an error lose whatever force they might otherwise have. Rubber not only vulcanizes readily at 212° F., but at much lower temperatures provided the proper proportionate time be allowed, and also provided that a reasonable compound be employed. The compounds given above vulcanize readily both at high and at low temperatures, as proved by a large number of direct experiments made at every 10 degrees between 172° and 445° F. The result of these experiments and the general rule applying to chemical combinations, warrants the assertion that vulcanization can proceed at temperatures down to and possibly below the ordinary temperatures, if sufficient time be allowed and if the compound be adapted to the temperature. Furthermore, rubber vulcanized at the low temperatures mentioned is fully as strong and elastic as rubber vulcanized at high temperatures. It resists the action of heat and cold and the usual solvents of rubber in every respect the same as if it were vulcanized at high temperatures. No difference can be discerned in any of its physical or chemical properties. Hence, whatever be the temperature at which rubber may be vulcanized the result of vulcanization must be the same so far as the result of the reaction is concerned. "Different bodies which consist of the same substance agree not only approximately, but exactly in their properties. Hence, bodies that agree exactly in their properties consist of the same substance. This law is the fundamental law of chemistry."

THE governor of the Straits Settlements—Sir Frank A. Swettenham—in an address before a recent convention of native sultans and datos at Kwala Lampur, in Selangor, said, on the subject of planting: "The prospects of rubber are so good that unless some unforeseen disaster happens the future is full of promise for those who have taken up this cultivation. The area at present under rubber (principally the Pará variety) is given approximately at 16,000 acres." These figures relate to the Straits Settlements proper and the adjacent Federated Malay States. Sir Frank, by the way, after a long service in the Far East, has retired.

THE INDIA-RUBBER TRADE IN GREAT BRITAIN.

By Our Regular Correspondent.

IT cannot be said that the past year witnessed anything of particular note in the trade. No new works were started and only one minor concern got into difficulties. That it has been a trying year, more especially in the latter half, on account of the high price of crude rubber, needs no emphasis, and it is satisfactory to note that the New Year opens with a better outlook in this direction. American and German firms continue to establish London offices and to swell the competition for the home trade, a fact which is causing erstwhile Free Traders to examine Mr. Chamberlain's proposals with attention. Among firms whose position has materially improved during the year may be mentioned the Midland Rubber Co., Limited, of Birmingham, who have successfully emerged from a troublous period. A good deal of experimental work has been done in the endeavor to compete with the Russian makers of rubber sponge, but only a limited amount of success has to be recorded. It would appear that the lasting property of such sponges has been somewhat exaggerated, and I should not be surprised if their popularity became less pronounced. Undoubtedly the particular branch of trade which has shown the largest degree of expansion is that concerned with the rubber heel-pad, which has become immensely popular with all classes. The files of the Patent office show that inventors have been busy in this direction during the past year, and many developments may yet be expected before the business reaches its zenith. Outside tire litigation, the law courts have not had to deal with much of trade interest. A case, however, in which a rubber firm was fined for causing a nuisance by the emission of affluvia from albuminous rubber is of importance, and it should strengthen the hands of those who advocate the cleansing of rubber from its principal impurities before it leaves the port of shipment. The fires that have occurred have been principally on the premises of dealers in waste rubber, euphoniously described in newspaper reports as rubber manufacturers. The failure to take reasonable precautions, coupled with the non-employment of night watchmen, is largely reponsible for these fires. With regard more especially to the north of England, the unsatisfactory state of affairs in the cotton and iron trades makes the outlook as regards mechanical rubbers not a very brilliant one for the first portion of the New Year.

1903—A RETROSPECT.

THERE can be little doubt that the working of railways by electric power will increase in Great Britain. That such form of traction is eminently suited to the Metropolitan railway of London admits of no question; that is, primarily, as regards the smoke nuisance. With regard, however, to non-subterranean lines, the question becomes one of economy only, and much interest attaches to the electrification of the Lancashire and Yorkshire railway between Liverpool and Southport, which is now in progress. The matter is interesting to the rubber trade mainly because of the insulated cables required. With regard to the line just referred to, a current of 6000 volts with transformers is used, the cable work being sublet by the contractors to Messrs. W. T. Glover & Co., of Trafford Park. Talking of Trafford Park leads me on to say a word or two about the British Westinghouse company. It has come, somewhat as a surprise to a good many people, that the financial results of the past year do not admit of a dividend on the ordinary shares. It was generally supposed that smaller British firms doing much the same class of business as the Westinghouse would find the new competition a very weighty matter, instead of which we find that firms like Dick, Kerr & Co., of Preston, have not only maintained their 10 per cent. dividend but are successfully competing with the American invasion. It is said, though I speak without any personal knowledge, that American methods of management are not easily adaptable to the British workingman, and certainly to rely on the somewhat slender reed of analogy there is plenty of evidence from other countries to support this contention. Turning to another matter, acrimonious discussion is not at all infrequent among members of local governing bodies with regard to the placing of contracts for electrical equipment with foreign firms. The explanation given is generally either that the particular goods are not made in Great Britain or that the foreign material is cheaper. At the present times the dry core telephone cables of the General Electric Co. (*Allgemeine Elektricitäts Gesellschaft*) of Berlin, are being laid in Manchester, though the British Insulated and Helsby Cables Co. are large and successful manufacturers of this same class of cable.

MATTERS ELECTRICAL.

THE British acting-consul at Coruña, northwestern Spain, in a Foreign office report, draws attention to the fact that the demand for galoshes in that damp climate is nearly all met by the Boston Rubber Shoe Co. Much the same must be said, I think, in the case of a larger town, London, to wit., for on all hands one hears appreciation of the goods of this company. As regards Spain, the Americans apart from any particular excellence of their goods, have been quicker than the British to issue circulars and price lists in Spanish, the British defection in this respect being a cause for continual jeremiads on the part of our consular representatives. As regards the weather so far in Great Britain, the absence of snow will no doubt prove a deterrent to sales, compared at any rate with Spain where the snowfall, especially in Madrid, has been very heavy.

FOOTWEAR.

ALWAYS ready to make amends for any false impression which I may inadvertently have given rise to or appeared to support, I have pleasure in testifying to the great progress recently made by this company in their business with the rubber trade. The fact may not be altogether palatable to older established firms in this country, but there is no use blinking it. Probably the reports which were current as to the paucity of the company's business arose from ignorance of its continental transactions.

NORTH WESTERN RUBBER CO.

BRIEF reference to this motor tire has already been made in these notes, and I now propose to amplify my former remarks. The name of Mr. E. H. Seddon is by no means unknown to the cycle tire world, though it is only recently that he has turned his energies towards the perfecting of motor tires. In Seddon's new red motor tire the strands of the fabric have unvulcanized rubber forced between them, being molded by high pressure into a compact material, the idea being to lessen the internal heat by preventing friction between the several cards. This arrangement, in conjunction with a high quality of rubber, has given a tire of great durability, as evidenced by the numerous and severe tests to which it has been subjected. In this tire an inner tube may or may not be used. I understand that in the trials

THE SEDDON MOTOR TIRE.

it was not used, and is only advocated by the management as an accessory, to be used in case of emergency. The prevention of side slipping has been kept prominently in view in the design and development of this tire, this desideratum being satisfactorily attained by employing a square tread of about 1¾ inches wide. The tire is attached to the wheel by two loose flanges which are bolted to the felloe, it being sufficient to remove one flange only in removing it from the wheel. It can be fitted to all makes of wooden wheels if the edges of the existing rims are turned off. Further information will no doubt be obtainable by those interested at 291, Great Northern buildings, Deansgate, Manchester.

NEW OFFICES

THE address just given leads me on to remark that this handsome new range of buildings is evidently popular with the rubber trade, for among the firms recently installed there may be mentioned The New Hudson Cycle Co., Brown Brothers Cycle Fittings, the Dunlop Pneumatic Tyre Co., Limited, and the Henley Telegraph Works Co., all of whom have an attractive exhibition of their goods at the street level.

NEW USE FOR RUBBER HOSE.

A LARGE amount of rubber hose piping is used by the Vacuum Cleaner Co., of London, in connection with their process, which has now become fully established. For those who have not seen it at work I may say that it consists of a portable vacuum pump and accessories for removing dust from carpets without removing the latter from the floor, the work being performed rapidly and without causing any nuisance.

NEW PACKING WORKS.

MESSRS. TURNER BROTHERS & CO., of Spotland Mills, Rochdale, who have long been suppliers of rubber packings, have now decided to become manufacturers thereof, and have recently put down complete machinery for this purpose. The installation, which includes washers, mixing rolls, and four spreading machines, has been carried out by Messrs. Francis Shaw & Co., of Bradford, Manchester, and the new works will very shortly be in full operation.

THE NEW GUTTA PERCHA CO., LIMITED.

THE second general meeting of this company was held on December 18, in London. The capital issued paid up amounts to £112,500. The new factory at Greenwich is equipped for an output of about one ton per day, which, it is explained, can be increased at a small further outlay. To judge by the report, although satisfactory testimonials have been received, the more important of prospective purchasers still ask for further time before committing themselves to definite statements as to the utility of the company's product. There are no working details so far on which to comment and the chairman's optimistic expectations as to the business to be done in the next twelve months will be merely noted here as of possible future interest in the possible event of disillusion.

NEW BOOK.

THE announcement that Herr Franz Clouth's book on the "Gummi, Guttapercha, und Balata" has been translated into English will be welcomed by many who are unfamiliar with the German language. I had the pleasure of visiting the works of Herr Clouth at Cologne a few years ago, and was especially pleased with the general cleanliness of the surroundings and the interest which was evinced by the proprietors for the well being of the workpeople.

PARLIAMENT AND THE TRADE.

THE announcement is made that Mr. Anderson, of Messrs. Anderson, Anderson, & Anderson, waterproofers of London, is to be a candidate for Parliament at the next election. It cannot be said that the trade is or ever has been represented in the house of commons to the extent which others of less magnitude and importance have achieved. Indeed, at the moment I can only call to mind the name of the late Mr. Hugh Birley, M. P., in this connection. This gentleman, who was a partner in Messrs. Charles Macintosh & Co., was one of the representatives for Manchester before the redistribution of seats took place, his death occurring in 1883. Other members of this firm who have been asked to allow their names to be put forward as candidates have declined the honor. The idea that Mr. Fletcher Moulton, M. P., is connected with the rubber firm of George Spencer, Moulton & Co., has no foundation in fact. In these days of limited companies there are many members who could be named as having financial interests in the rubber trade, if they are not practically engaged in the manufacture. Mr. Fuller, member for one of the divisions of Wiltshire, is largely interested in the Avon India Rubber Co. of Melksham, and more than one of the large cable making companies could make their voices heard in the House did occasion arise. It is of course desirable for any trade under the provisions of the Factory acts to have spokesmen in Parliament, though it is open to doubt whether a discussion on the cold curing process would be received with much more attention than was accorded to the Hon. Walter Rothschild when discussing at length the question of the sale of undersized fish. But this by the way, with regard to Mr. Anderson's candidature, this being a non-political journal, from a trade point of view his success at the polls would be generally welcomed.

REPORTED DESTRUCTION OF PARA RUBBER TREES.

A LONDON contemporary, in giving the essence of a report made by Mr. Consul Kenneday, of Pará, to the government at Washington on this subject, mentions it as being of particular interest. The matter would undoubtedly be of most serious interest if the report is to be taken as reliable. British readers of THE INDIA RUBBER WORLD take comfort, however, in the criticism on this report contained in the December issue of this Journal, where it is asserted that Mr. Kenneday has confused the *Hevea* trees with those yielding "Caucho" or Peruvian rubber. The matter is one of importance on account of the wide publicity which alarmist notices in consular reports frequently obtain. No one expects a consul to be an expert in every one of the multitudinous trades to which he may make reference in his reports, but at any rate he should take some trouble to examine into the credibility of his informants. It will be remembered that the same author was not so long ago taken rather severely to task by our Editor for his references to the Balata forests of Brazil, the facts concerning which appeared to have been supplied either as a practical joke, or by some totally incompetent person. Perhaps the last word has not yet been said on the present matter, and any further reference to it from Nassau street would be read with interest.

RUBBER IN NICARAGUA.

THIS state, with its record of peace and prosperous financial conditions, is evidently more worthy of the attention of capitalists than are some other American republics with their everlasting political troubles. In addition to the recent spurt in gold mining, which has attracted American and Russian capital, a good deal is being done in rubber forestry, especially in the district of which Matagalpa is the center. It is the Ceará rubber tree to which particular attention is being paid. Four or five years ago, owing to the wasteful methods of collection practiced, a law was passed forbidding the collection of rubber for three years; this embargo being now removed the export of rubber should show an increase. It is, however, the replanting of denuded areas that the government desires, and to further this end a premium is given according to the number of trees actually planted.

RUBBER NOTES FROM EUROPE.

AN ACTION FOR INFRINGEMENT FAILS.

IN an action by the Dunlop Pneumatic Tyre Co., Limited, against David Moseley & Sons, Limited, for alleged infringement of patents, judgment was rendered in behalf of the defendants. The plaintiffs claimed an injunction to restrain the Messrs. Moseley from making and selling an outer detachable cover with a lining suitable for the insertion of wires, or with beaded edges, so that it was adapted for use in the manner described in the tire patent specfiications of Welch and of Bartlett, both of which are owned by the Dunlop company. The Messrs. Moseley have been making such tire covers for a number of years. In the decision of the court it was pointed out that a large proportion of the trade of Moseley was export trade, and that the selling of tire covers for export was not an infringement. They also sold large quantities of tire covers to firms and companies who are licensees of the Dunlop company, and this was not infringement of the plaintiffs' patents. With regard to covers sold, not for export or to licensees, but to the general public, it was held that the sale of a cover alone was not an infringement of a patent which related to a combination of such cover with other articles. It appeared that rims suitable for both of the tires in question had been openly made and sold—that inner tubes and wires suitable for Welch tires were sold as ordinary articles of commerce. As a matter of law, the court was of opinion that the defendants were not infringing either of the two patents by merely making and selling the outer covers. Selling them for export was lawful; selling to licensees from the Dunlop company was lawful; and it would be placing too great a burden upon the defendant company to require them to ascertain the ultimate purpose to which any purchaser might put the cover, especially as such covers could not be claimed to be necessarily adapted for use solely in connection with tires under the Welch and Bartlett patents.

DUNLOP TIRE PROSPECTS.

AT the last annual meeting of The Dunlop Pneumatic Tyre, Limited, Mr. Harvey du Cros, the chairman of the company, after reviewing the history of their connection with the motor tire trade, and their preparations for the future, said to the shareholders: "You have in the last year of our patent the largest contracts the company ever enjoyed—very much the largest—though prices, of course, were not so favorable. I think when I tell you we have arranged at our Para Mill [in Birmingham] for the production of 1,250,000 tires for 1903-04 you will realize that a great deal has been accomplished in holding the trade." Reference was made to the erection, during the year, of an entirely new manufacturing department, in the tire plant at Birmingham, for motor tires alone.

THE AUSTRALIAN DUNLOP COMPANY.

THE Dunlop Pneumatic Tyre Co. of Australia, Limited, (Melbourne), have now completed four fiscal years. The bicycle tire trade is not now what it was, but the manufacture of solid carriage tires and some other articles has been added, so that the total production is now larger than at any time in the past. It has not been found possible, however, to maintain the liberal rate of dividends at first adopted. The capital consists of £80,000 in 7 per cent. cumulative preference shares, £20,000 in non cumulative preference shares, and £70,000 in ordinary shares—a total of £150,000 [=$729,975]. A large proportion of this represents goodwill, patents, etc., and the payment of dividends on the ordinary shares has been suspended, as placing too great a strain upon the business. In 1902-03 the gross revenue was £47,481, and the net profit £17,304. Dividends on the preferred shares amounted to £7100. Wages and salaries amounted to £30,377. It would appear, therefore, that the business is important—and it has been intimated that the preference shareholders might supply sufficient capital to place the company upon an easier working basis.

THE UNITED STATES RUBBER CO. IN EUROPE.

THE annual dinner of the employés of the European depôt of the United States Rubber Co., which occurred this year on January 2 at the Holborn restaurant, London, was as usual a thoroughly successful affair, enjoyed by all who participated. Besides the staff of the company, there were present representatives of several of the larger customers. The chairman was Mr. H. H. Holland, the manager, who referred feelingly to the loss which had been sustained during the year of their former manager Major John W. Knott. It was mentioned, by the way, that a son of the latter is now in the office. The business of the past year was referred to as not only having been satisfactory, but as showing an increase over the past, but their success had not spoiled the business of any British manufacturer. "They had greatly increased the trade for all concerned in the rubber shoes. They had come over here with their new lines, light weights, etc., and these goods had sold, and their competitors, rightly enough, had taken note of the improvements, and now nearly all of them had more than they could do. Except for the manufacturing expenses, their business in Europe was conducted by Englishmen and wages paid to Englishmen. Whether the country was free or protected, it was enterprise that made business go."

GREAT BRITAIN.

AT a special meeting of The Goodyear Tyre and Rubber Co., Limited, in London, on December 21, it was resolved to go into voluntary liquidation, and Albert Charles Hills, the manager, was appointed to carry the resolution into effect.

=The Limpley Stoke India-Rubber Co. have been organized to reopen the premises occupied lately by Wallington, Weston & Co. (now of Frome), at Limpley Stoke, Bath, England, and are now manufacturing solid rubber tires.

=*The India-Rubber Journal* reports the death, at Edinburgh, in his eighty-sixth year, of Mr. Hay Downie, who in 1869 patented a rubber horse shoe, which was one of the first placed on the market, and which was the basis of the success of The Patent Horse Shoe Co.

=George Angus & Co., Limited (Newcastle-on-Tyne), pay 10 per cent. on last year's trading, and carry forward £41,730.

GERMANY.

AT the general meeting of the Bremer Gummiwerke Roland, Actiengesellschaft, at Bremen, on December 1, it was voted to convert the ordinary shares into preference shares of 1000 marks by the payment of 500 marks on each. The company began business in 1901, with a capital of 800,000 marks, increased later to 1,000,000 marks [=$238,000], but have not yet paid a dividend. They are engaged in the manufacture of mechanical rubber goods.

=The Actiengesellschaft für Gummilösung vormals Otto Kurth, of Offenbach—the Rubber Solution Co.—reports profits of 50,632 marks [=$12,050] for the last business year, and will pay 8 per cent. on a capital of 500,000 marks.

FRANCE.

MESSRS. GUSTAVE JOB & CIE. (Paris), importers of India-rubber, Gutta-percha, and colonial products, advise THE INDIA RUBBER WORLD of their removal to 7 and 9, Passage Violet. Monsieur Job has been engaged in the rubber trade for over fifteen years, of which ten were spent in Brazil.

THE FOUNTAIN PEN INDUSTRY.

ALTHOUGH fountain pens have been in use long enough for the earlier patents to have expired, it has only been within the last half dozen years that the trade has begun to assume really important proportions. At the present time the manufacture of fountain pens is an industry employing many hundreds of workmen, the advertising of fountain pens calls for a large expenditure of money, and their sale is quite an item in the business of stationers and other stores. These pens can be had for almost any price, from $1 up to $25 or $30, but the standard grades, which have become widely known, are rarely retailed for less than $2.50. The increase in cost comes with additional size to the gold pen and extra workmanship upon the holder.

A visit to a factory in New York city which employs more than 100 hands was an interesting experience. This establishment purchases its hard rubber cones or tubes and finishes them to suit the various brands, but is considering the advisability of putting in its own rubber machinery and making its pens entire from the crude product up. Its gold pens are made entirely in the factory and careful labor and delicate machinery are required. From the bar of gold to the finished pen requires a score of different processes and, in some steps, highly skilled workmanship. The gold after being melted and alloyed with the proper metals is cast into a brick or block which is afterwards rolled out into a long thin ribbon and from this under high pressure dies the pens are cut in various sizes. After this they are trimmed and pointed, split, shaped, polished, and marked. When the pens are heated to a malleable point a tiny fragment of irridium, so small that the workmen must use a magnifying glass to see it, is welded on the point. When the pen is later split, this fragment of irridium, small as it is, must be sawed exactly half in two. This delicate operation is accomplished by a smooth disc of copper revolving like a circular saw at a high speed. Later on, each section of the irridium tip is ground under magnifying glasses so that it has eight equal faces on the exposed side that will touch the paper. This requires extremely careful workmanship and of course adds to the cost of the pens of the better class.

The turning of the hard rubber handles is almost exclusively lathe work and requires expensive tools if not such delicate workmanship. Tools dull very rapidly in turning hard rubber, and only the finest steel can be used. The cores must be turned to an exact size, must be made to fit perfectly and accurately in every part, and must be highly polished. In many pens they are ornamented with chasing and in the more elaborate holders gold and silver bands or embossing are added. The security of the pen, however, must be in the perfect adjustment of the parts that prevents leaking and regulates exactly the proper flow of ink. Only accurate workmanship on the rubber tubes can secure this.

Accurate statistics of the fountain pen manufacture are not compiled up to the present time, and as the trade has doubled in the last five years, past figures are not reliable enough to quote. From the first of September until the holiday trade flags, is the busy season for the manufacturers and during this period, according to the estimate of one manufacturer, who has been in the business for a dozen years, the output of pens in the United States is about 30,000 per week. Of this number the leading maker and most widely known brand makes perhaps one third. None of the fountain pen manufacturers, however, makes his own rubber cores and in many instances some of the brands or styles which are most extensively advertised have no factory but are made up at the establishments which manufacture rival styles for different competing firms.

The industry has, however, become something of importance to the hard rubber trade, and as improvements from year to year are making the fountain pen more perfect and bringing it into more general popularity it will continue to increase in importance. The fountain pen is a feature of business and no longer a fad. It has achieved commercial recognition. It is only one of the many forms in which the demand for rubber goods shows the yearly necessity for increased supplies of rubber.

It may be added that a careful attempt was made, in the census of 1900, to estimate the production of fountain pens in the United States, but strict accuracy was not possible, owing to the fact that such goods are produced, in many instances, in establishments making other styles of pens or pencils, and a separate account was not kept of the different classes of products. It appears, however, that New York leads in the production of fountain pens, while Ohio is second in the industry. The total production for 1900 is reported at 830,384, and the selling value at $707,023. The number credited to New York was 489,024, of the selling value of $417,123. These values, of course, are the result to the factory, and not the retail prices.

Fountain pens were manufactured in England as early as 1835, but they were not satisfactory enough to warrant their use to any extent. Their first successful manufacture in the United States dates back only to 1880, or a little before. Originally, in England, there were two types of these pens, known as the Schaeffer pen and the Parker hydraulic pen. Schaeffer's pen had a reservoir for ink in the holder, and the ink was admitted to the pen by the pressure of the thumb on a projecting stud. Parker's pen also had a reservoir in the holder, which contained a piston operated by a screw stem and a nut in the end of the holder. The lower end of the reservoir being dipped in ink, the piston was drawn up by rotating the nut, thus filling the reservoir. The ink was rejected as required by a reverse motion of the thumb nut.

The early attempts to construct fountain pens were generally confined to the invention of contrivances such as internal tubes, ducts, valves, or springs, which were operated upon by the action of the nibs, and which forced the ink from a feeding pipe upon the pen, assisted by air admitted to the top of the holder to take the place of the exhausted ink. Pens dependent upon such mechanism were very erratic in their work, as the ink flowed either too slow or too fast. After many experiments to secure a continuous and properly regulated flow of ink into the pen, it was found that the best results were obtained by the use of a tubular holder tightly closed at its upper end, and at the lower end fitted with an ordinary nib pen made of gold, with an ink feeder lying adjacent to the pen to attract the ink from the reservoir. As the ink in the process of writing is withdrawn, the air enters at the lower end of the holder and ascends in globules through the column of ink to fill the space left vacant.

There are many varieties of fountain pens made in the United States, but the basic principles underlying all are practically the same, the retention of the ink by atmospheric pressure and the furnishing of a supply ready for use throughout many hours of continuous writing. In the United States alone, in ten years, 185 patents have been granted for inventions under the heading "Fountain Pen," as follows:

1893..16	1895..14	1897..15	1899. 25	1901..21
1894..12	1896..16	1898..22	1900..22	1902..22

During the same period 29 patents were granted with the titles "fountain pen attachments," "fountain penholders," "fountain marking pens," etc., and several patents for "reservoir pens," and the like.

TIRES AT THE NEW YORK AUTOMOBILE SHOW.

THE tire exhibits at the fourth annual automobile show under the auspices of The Automobile Club of America and the National Association of Automobile Manufacturers, at Madison Square Garden, New York, January 16 23, shared liberally in the increased interest shown by the public in automobiles. The attendance was larger than at the previous shows, there were more exhibitors and more machines displayed, and the visitors displayed a more intelligent interest and apparently more concern about making purchases. It was agreed on all sides that the year had been one of steady improvement in details of construction, resulting in machines of greater efficiency and of more attractive appearance. The comment was general that the American automobiles, on the whole, did not suffer from comparison with the foreign exhibits, although the most celebrated makers in Europe were fully represented by their best types.

No less than the automobile makers, the rubber men had been busy during the year in seeking to perfect their product, and throughout the show it was evident that users and intending purchasers of automobiles are becoming alive to the importance of the rubber equipment of these machines. Hence the tire exhibits were visited constantly by individual automobilists, displaying no less interest than the makers of machines on the lookout for the best and latest tire features.

There was no new type of tire shown; no new shapes were apparent to the casual observer, and only one novelty in methods of tire attachment. But there was to be seen in this tire booth or that a change in contour, or a modification in weight or thickness of tire walls, or a new detail in the building up of treads—all with a view to strengthening the tires, or rendering them less liable to wear or puncture, or to afford more elasticity. And the net result of all these efforts is a distinct improvement since last year's shows in automobile tires.

The principal comment of a general nature to be made is that the detachable "clincher" tire has become the standard. Last year there were ten tire manufacturers' exhibits, only four of which embraced "clincher" tires, and in not all of these was it offered as the leading attraction. This year there were again ten manufacturers' exhibits—not counting two foreign firms—and eight of these gave prominence to the "clincher" tire, while some had nothing else to show. The ninth exhibit was devoted to detachable pnenmatic tires of a special type, and the tenth to solid tires. For that matter, several displays embraced solid tires, but principally for the equipment of heavy commercial vehicles, fire apparatus, and the like, for which no pneumatic tire as yet seems adapted. The single tube tire was scarcely visible. The two foreign tire exhibits belonged to the "clincher" class.

THE EXHIBITS IN DETAIL.

THE DIAMOND RUBBER CO. (Akron, Ohio).—The feature of the exhibit was the "Diamond detachable," which is of the now predominating "clincher" type. The most distinct novelty was the rubber covered lug, described in the last INDIA RUBBER WORLD, which has been patented, and is expected to reduce by one half the troubles with inner tubes. The exhibit included two tires used by E. Tom Fetch in his "endurance run" from San Francisco to New York. In the building was the "Grey Wolf," fresh from its record breaking run at Daytona, with Diamond tires.

REPRESENTATIVES.—A. H. Marks, vice president and superintendent; W. B. Miller, secretary. Branch managers: O. J. Woodard, New York; O. S. Tweedy, Chicago; W. M. Perrett, Detroit; W. T. Helfer, Boston; Samuel F. Randolph, Jr., Philadelphia; N. T. Oliver, Buffalo; F. E. Taylor, Cleveland. New York salesmen: G. J. Bradley, D. W. Miles, W. T. Cronin, E. A. Percy.

FIRESTONE TIRE AND RUBBER CO. (Akron, Ohio).—The Firestone side-wire solid tire, for automobiles, trucks, fire engines, and other vehicles, heavy or light. Some very heavy tires were exhibited, with illustrations of vehicles of unusual size on which such tires are in use. There were also shown specimens of worn out tires, showing that the "side wire" construction allows of the effective use of a tire until less than a third of the rubber remains.

REPRESENTATIVES.—H. S. Firestone, president; J. M Gilbert, sales manager; W. P. Berrien, New York manager; A. J. Greene, Boston manager; F. O Sawyer, St. Louis manager; J. L. Gibney, Philadelphia manager; W. A. Wells salesman, New York.

FISK RUBBER CO. (Chicopee Falls, Mass.).—The detachable automobile tire described in these pages in connection with last year's automobile shows. Also, the Fisk tire vulcanizers.

REPRESENTATIVES.—H. G. Fisk, treasurer; H. T. Dunn, general manager; J. C. Cole, superintendent.

G & J TIRE CO. (Indianapolis, Indiana).—The original "G & J" tire, the first exponent of the "clincher" principle of tire construction in the United States. This tire is supplied with either corrugated or smooth tread, but it is stated that about 90 per cent. of the demand is for corrugated tires. The "wild mile" made by Henry Ford, in 39 2-5 seconds, on the ice of St. Clair lake, on January 12, was with the use of tires supplied by this company. Manufactured by the Indianapolis Rubber Co., which is under practically the same control.

REPRESENTATIVES.—H. O. Smith, president; J. D. Anderson, general manager H. A. Githens, sales manager.

THE B. F. GOODRICH CO. (Akron, Ohio).—The "Goodrich clincher" tire was shown, with no change from last year's models, but with the results of the efforts of a year to strengthen the tire and otherwise improve its efficiency and wearing qualities. The side-wire solid tire was also shown, and the two wire solid tire.

REPRESENTATIVES.—Harry E. Raymond, general sales manager; A. J. Wills, manager tire department; Harry Sheldon, F. Y. Stewart, E. W. Bonham, H. B. Niblette, Frank Holcomb, New York office; J. W. Lyman, Philadelphia office H. B. Limric, Boston office; W. O. Rutherford, Buffalo office; O. R. Cook, C. B Tullis, general representatives.

THE GOODYEAR TIRE AND RUBBER CO. (Akron, Ohio), showed their "Akron clincher" tires with the "new construction," designed to give greater resiliency, strength and durability, the new feature relating to the building up of the tread. Also, a clincher tire with flat and corrugated tread, intended especially for rear wheels. Large endless solid tires were shown, with a special method of attachment, of which type they recently fitted a 19,000 pound truck for the Coe Brass Works (Ansonia, Connecticut) with a set, two wheels 36 inches in diameter and tires 6 inches wide, and two 42-by 7 inches, the bill for the tires being $672.75. Another specialty of this company is a detachable pneumatic tire held in place by flanges bolted through the felly.

REPRESENTATIVES.—Charles W. Sieberling, secretary and treasurer; K. B. Harwood, manager, and C. M. Cordell, H. G. Fitler, W. D. Newarf, salesmen, New York; W. T. Teagan, manager, and George S. Atwater, salesman, Boston.

THE HARTFORD RUBBER WORKS CO. (Hartford, Conn.).—This exhibit included the principal tire novelty in the building—the new Dunlop detachable motor tire, described in the last INDIA RUBBER WORLD. Another novelty for this company is the "Hartford clincher" tire, made under the "G & J" patents.

A special form of construction of the tread is shown, to add to resiliency and durability of the tire. A third novelty was a "metallic tread," applicable to tires of whatever type. This consists of incorporating within the tread, before vulcanization, a number of steel rivets, with flattened heads, which protect the rubber from wear, in any form of tire, and especially protect pneumatic tires from puncture. The company continue to make a feature of the Turner endless solid tire.

REPRESENTATIVES.—Lewis D. Parker, president; J. W. Gilson, secretary; A. E. Friswell, assistant superintendent; Burton Parker, advertising manager; R. P. Parker, New York downtown manager; E. S. Roe, New York uptown manager; E. R. McMaster, Detroit manager; T. S. Edwards, Alexander O. Holroyd, R. C. Clunan, B. C. Severance, B. W. Snoman, Joseph Rentall, H. F. Snyder, R. H. Laporte, J. F. Coughlin, salesmen.

INDIA RUBBER CO. (New Brunswick, New Jersey).—India "G & J" automobile tires, made under license; single tube carriage and motor tires; "India" detachable automobile tires—double tube—held in place by flanges bolted to the felly; "India" endless solid motor and wagon tires; "India" side wire solid tires; "India" two-wire solid tires; tire applying machines. This is a new factory, continuing the business of the India Rubber Co. burned out at Akron last year, with the addition of the "G & J" licensed tire.

REPRESENTATIVES.—Claude Platt, Silas L. Hazel, and various representatives of the factory.

INTERNATIONAL AUTOMOBILE AND VEHICLE TIRE CO. (Milltown, New Jersey).—"International" single tube ("Fox brand"), detachable, solid, and cushion tires, for automobiles and carriages. The detachable tire is made under license from The G & J Tire Co., and is also labeled "Fox brand." The solid tires are of the ordinary two wired on type. The company also market a machine for applying solid tires.

REPRESENTATIVES.—James C. Matlock, president; Park Mathewson, general representative; H. S. De Silver and R. W. Ireland, salesmen.

MORGAN & WRIGHT (Chicago) confined their exhibit to their new product, the "Morgan & Wright clincher" tire. In section, this tire is circular, rather than oval, as in the case of a number of other manufacturers, which feature is believed to put less strain on the walls of the tire when in use. Besides, an element of elasticity has been added to the tread by the incorporation in it of several plies of fabric with layers of rubber between, with the idea that, should the wheel strike an obstruction, it will pass over with less damage to the tire. The two features here noted are pointed out as lessening the tendency of the rubber and the fabric to part company, a cause of shortening the life of tires quite as much as actual wear of the tire surfaces.

REPRESENTATIVES.—Arthur Phelps, sales manager; W. C. Marion, New York manager; J. J. Alexander, Chicago; G. S. Shugart, New York; J. C. Weston, Detroit.

THE FOREIGN TIRES.

NOT the least interesting feature of the show was the appearance for the first time in an American show of exhibits of foreign made tires, side by side with those of home manufacturers. There were two such exhibits, embracing tires which have already become known here, not only by reputation, but through their use, for several years past, on imported automobiles.

The CONTINENTAL tire was exhibited by the Continental Caoutchouc Co., No. 298 Broadway, New York, this being an American corporation formed to represent the famous Hanover tire manufacturers in this market. Special attention was called to the winning of the Gordon Bennett Cup, in last year's races, by a motor car fitted with "Continental" tires.

The MICHELIN tire was exhibited by Norris N. Mason, No. 132 West Twenty-seventh street, New York, agent in the United States for the French firm of Michelin. In the Gordon Bennett cup race were three automobiles fitted with Michelin tires, and these finished second, third, and fourth. Twenty-five of the forty foreign automobiles in the show were equipped with Michelin tires. This exhibit included two wheels, with Michelin tires, on which a Mr. Lake, of New York, is said to have toured 4000 miles in Europe.

THE OTHER TIRES.

THE DE LASKI & THROPP CIRCULAR WOVEN TIRE CO. (Trenton, New Jersey) exhibited a tire patented by Albert de Laski, and the fabric in which is woven on a loom by the same inventor, described as the only circular loom yet perfected "for weaving a true annular cylindrical fabric for tires." The body of the tire resembles ordinary cotton fire hose, the annular feature being attained by grouping the warps of largest diameter on that side of the tube which answers for the tread, and those of the smallest diameter on the side to be used next to the rim, the warps gradually decreasing in size as they recede, on either side, from the center line of the tread portion of the fabric. The fabric portion is of one piece, practically without a seam, and claims are made of great strength, flexibility, and durability. The rubber cover is cemented on.

THE FAWKES RUBBER CO. (Denver, Colorado) exhibited the Fawkes "Indestructible Airless Tire," which has the outward appearance of a single tube pneumatic, but is fitted with a rubber core provided with a succession of chambers, to render the whole resilient. Basil S. Courtenay, manager of the New York office, was in charge, and reported a good list of sales. The tires are made by the Milwaukee Rubber Works Co. [Illustrated in THE INDIA RUBBER WORLD, July 1, 1903.]

THE B-OK TIRE CO. (Chicago) exhibited the "B-OK" tire, which, not inflated, is offered as a "strictly pneumatic tire." It consists of a core of sponge rubber, surrounded by layers of canvas and an outer cover of rubber. The sponge is claimed to serve as a vast number of small air cells, with the effect of a well inflated pneumatic tire. [Illustrated in THE INDIA RUBBER WORLD, June 1, 1903.]

THE TENNANT AUTO-TIRE CO. (Springfield, Ohio) exhibited the Tennant "puncture proof" tire. The tread is built up with strips of puncture proof fabric, besides which the air tube is protected from side punctures by cushions lying between the outer and inner tubes. [Sponge cushion feature illustrated in THE INDIA RUBBER WORLD, September 1, 1903.]

WHALEBONE RUBBER CO. (New York) exhibited a pneumatic tire made of special materials, and on special lines, to prevent puncture. When deflated this tire, it is claimed, will not collapse to the same extent as ordinary pneumatic tires of circular section, on account of its broad square tread. [Illustrated in THE INDIA RUBBER WORLD, June 1, 1902.]

THE FOSTER RUBBER CO. (Boston) exhibited a tire, the head of which is protected from slipping, and also made to wear longer, by a succession of Foster "friction plugs." This feature is capable of attachment to any type of tire. [Illustrated in THE INDIA RUBBER WORLD, November 1, 1903.]

THE STODDER TIRE CO. (New York), which had an exhibit some years ago at the cycle shows, reappeared with an automobile tire involving their special fabric, designed both for strength and for protection against punctures.

WILLIAM CORLISS & CO. (Providence, Rhode Island) made no exhibit, but announced the forthcoming Corliss "puncture proof pneumatic tire." It is promised that it can be immovably fixed to wheels by means that will not diminish its strength or durability, that it will be less cumbersome than other tires, proof against puncture and yet resilient, and, altogether, prove the first saisfactory pneumatic tire for automobiles. The tire embraces two air tubes, with steel protective plates.

RECENT RUBBER PATENTS.

THE UNITED STATES PATENT RECORD.

ISSUED DECEMBER 1, 1903.

NO. 745,358. Rubber tire setting machine. E. R. Lanpher, Carthage, Missouri.

745,393. Shoe heel. L. F. Small, Braintree, Massachusetts.

745,405. Paint brush [with tubular duct connected to reservoir]. E. Veglard dit Labonté, assignor to J. R. Marcotte, both of Montreal, Canada.

745,406. Painting and cleaning apparatus. *Same.*

745,421. Stopper confiner for flexible bottles. C. F. Cushing, Braintree, Massachusetts, assignor of one half to F. E. Lovejoy, Boston.

745,443. Detachable tire. H. E. Irwin, Galesburg, Illinois, assignor to Irwin Rubber Co., Chicago.

745,469. Apparatus for submarine work [formed of a series of sections having collapsible walls and a flexible waterproof outer covering]. C. Williamson, Newport News, Virginia.

745,477. Bottle stopper [comprising an elastic perforated disc]. J. C. Bowers, Boston, assignor of one half to George C. Bartram, Brookline, Massachusetts.

745,481. Self filling fountain pen. R. Conklin, assignor to the Conklin Pen Co., both of Toledo, Ohio.

745,553. Portable bath mat. W. E. Allen, Toledo, Ohio.

745,643. Packing for piston rods. M. Montgomery, assignor to Montgomery Brothers, all of Philadelphia.

745,685. Death determining instrument [comprising an air tube adapted to communicate with the lungs of a person]. J. E. Storms, Jr., Yonkers, New York.

745,785. Warming device for use by invalids. E. H. Coates, Macon, Georgia.

745,792. Elastic tap for soles of boots and shoes. W. C. Gorham, Rochester, New Hampshire.

745,793. Elastic pad for heels. *Same.*

745,815. Hose coupling. W. W. Gibson, Fallston, Pennsylvania.

745,876. Liquid dispensing vessel. G. F. Medley, Louisville, Kentucky.

745,878. Pneumatic tire protector. G. E. Mentel and S. N. Mentel, Springfield, Ohio.

745,920. Baby comforter. H. Spencer, assignor to S. Soyster, both of New York city.

Trade Mark.

41,547. Waterproof sheeting and fabrics. The Hospital Sheeting Co., Boston. *Essential feature.*—The figures of two storks standing in water and holding in their bills a piece of fabric. Used since January 16, 1903.

ISSUED DECEMBER 8, 1903.

746,096. Washer. Melville S. Brigham, Hingham, Massachusetts.

746,143. Method of making composition horseshoes. George J. Peacock, assignor of one fourth to Henry J. Potter, both of Pittsburgh, Pennsylvania.

746,207. Repair device for pneumatic tires. John R. Vosburgh, Johnstown, New York.

746,336. Artificial leg. James Johnston, Jamaica Plain, Massachusetts.

746,380. Apparatus for administering anesthetics [through either the mouth or the nose]. Frank M. Richardson and John F. Field, Chicago.

746,497. Coupling for armored hose. Edwin T. Greenfield, Monticello, New York.

746,630. Armored hose and method of making same. [A flexible hose composed of an inner tube of rubber; a surrounding tube of fabric, such as braided cotton, and an armor of interlocking metallic strips spirally disposed therearound, the inner tubes being given "set" corrugations from within which correspond to the spiral corrugations of the armor]. Edwin T. Greenfield, Monticello, New York.

ISSUED DECEMBER 15, 1903.

746,688. Substance resembling India-rubber [100 parts coal tar; 25 parts boracic acid; and a suitable quantity of oxygen.] Daniel H. Dupont-Franklin, New York city.

746,689. Method of manufacturing a substance resembling India-rubber. *Same.*

746,693. Vehicle wheel [with elastic tire]. Harry G. Grier, East Orange, New Jersey.

746,743. Combined lap robe and storm apron. Samuel D. Reid and Ella M. Reid, Burlington, Kansas.

746,749. Nasal medicator. George E. Seidel, Richmond, Indiana.

746,862. Ventilated shoe. C. H. Matson, assignor to himself and C. P. Anderson, both of Worcester, Massachusetts.

746,866. Perfumery atomizer. Russell W. Moore, Orange, New Jersey.

746,902. Vehicle wheel [covering a modification of the Dunlop tire.] Frank H. Turner, Hartford, Connecticut.

746,940. Collapsible part for boats, [a raft of inflatable tubes]. John Ewing, Jr., Richmond, Canada.

746,953. Tree spraying mechanism. Jesse C. Gill, Arnold, Ohio.

746,963. Clothes wringer. Frederik Hooker, Baltimore, Maryland.

746,976. Protecting head gear or hat. Anna Mieroslawski, New York city.

747,001. Pneumatic tire. Edward H. Seddon, Brooklands, England.

747,008. Hose coupling. Harry E. Smith, Roslyn, Washington.

747,025. Nursing bottle. Anna M. White, Hasbrouck Heights, New Jersey.

747,139. Abdominal support. Fred W. Clark, Utica, New York.

747,237. Elastic tire. Wilhelm W. E. Scheck, Kassel, Germany.

747,242. Hose coupling. F. Schuette, G. Fleischer, and W. S. Thellman, Homestead, Pennsylvania.

747,247. Truss pad. Isaac B. Seeley, New York city.

747,304. Cushion wheel and hub therefor. Roland C. Hilston, New Bedford, assignor to Louis A. Wyman, Lynn, Massachusetts.

ISSUED DECEMBER 22, 1903.

747,360. Hose coupling. Harry G. Barry, Pontiac, Michigan.

747,375. Horse collar or the like [pneumatic]. Juan E. Chiloteguy, Buenos Ayres, Argentina.

747,412. Hose coupling. August H. Getz, Washington, D. C.

747,414. Combined syringe and applicator. Edward N. La Veine, Kansas City, Missouri.

747,515. Telephone or like cable. Francis Tremain, Highgate, England.

747,742. Anesthetic inhaler. Edwin Marshall, Warrensburg, assignor to George C. Pitcher, Kansas City, Missouri.

747,817. Air brake coupling. R. W. Wilke, Auburne Parke, and M. Bauer, South Englewood, Illinois.

747,876. Insulating wire. Henry W. Fisher, Pittsburgh, Pennsylvania, assignor to Standard Underground Cable Co.

ISSUED DECEMBER 29, 1903.

747,948. Fountain pen. William F. Cushman, Boston.

748,068. Crutch [with resilient appliance for tip]. James H. Hammond and William Bridgewater, Leicester, England.

748,256. Elastic tire for vehicles. Edgar M. Birdsall, Buffalo, New York, assignor to De Witt H. Bothwell, Toledo, Ohio.

748,382. Hose coupling. Wolfgang Koller, Pittsburgh, Pennsylvania.

Trade Marks.

41,736. Certain named waterproof fabrics and articles made therefrom. H. M. Sawyer & Son, Cambridge, Massachusetts. *Essential feature.*—The word "Excelsior." Used since October, 1902.

41,737. Elastic bands, elastic braids, and elastic webbing. A Steinhardt & Bro., New York city. *Essential feature.*—The words "Gilt Edge." Used since November 2, 1895.

41,738. Tailors' prepared Gutta-percha tissue. Frederick Douglas Scott, Montreal, Canada. *Essential feature.*—The word "Economic." Used since September 17, 1903.

41,739. Certain named rubber fabrics. Tredair Rubber Co., Boston. *Essential feature.*—The word "Tredair." Used since August, 1903.

CORRECTION.—The trade mark "Amalac" of the Massachusetts Chemical Co was mentioned in our last issue [page 123] as having been "used since 1903." The date should have been printed 1893.

[NOTE.—Printed copies of specifications of United States patents may be ordered from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

THE BRITISH PATENT RECORD.

[* *Denotes Applications from the United States.*]

PATENTS APPLIED FOR—1903.

24,689. A. B. Drummond, London. Non slipping tire. Nov. 13.

24,876. T. Brown, Sheffield. Revolving heel pad. Nov. 16.

24,890. J. Cockburn, London. Pneumatic tire for vehicles. Nov. 16.

24,994. Rose Basch and S. Basch, London. Elastic tire. Nov. 17.

25,034. R. Gough, London. Ventilation of mackintoshes. Nov. 17.

25,085. R. Wallwork and C. H. Wallwork, Manchester. Protective cover for tires. Nov. 18.

25,107. A. T. Sadler and A. Franklin, Birmingham. Repair band for pneumatic tires. Nov. 18.

25,220. W. F. Williams, London. Means of securing elastic tires. Nov. 19.

25,250. Henrich Traun, London. Improved manufacture of combs and other objects in vulcanized India-rubber. (Communicated from Germany). Nov. 19.

25,274. E. Lapisse, London. Pneumatic tire for vehicle wheels. Nov. 19.

25 299. F. H. Barker, Manchester. Rubber heel for boots. Nov. 20.

25,357. J. Esmonde, London. Tire for wheels and rim for same. Nov. 20.

25,373. G. E. Wells, London. Manufacture of golf balls. Nov. 20.

25,406. T. Singleton and G. W. Singleton, Halifax. Revolving heel. Nov. 21.

25,408. F. S. Beilby, Manchester. Cover for pneumatic tires. Nov. 21.

25,418. J. M. Macrae, London. Hot water bag. Nov. 21.

25,428. J. Fisher, Manchester. Golf ball. Nov. 21.

25,432. P. Higham and J. Rickard, Plymouth. "Higham" inner tube for cycle and motor tires. Nov. 21.

25,572. E. Midgley, London. Pneumatic tire cover. Nov. 23.

25,598. F. F. Kerr, Liverpool. Pneumatic tire. Nov. 24.

25,631. H. E. Kitcat, London. Hose coupling. Nov. 24.

25,645. A. J. W. Curry, London. Means for repairing pneumatic tires. Nov. 24.

25,656. L. Nioré, Liverpool. Pneumatic tire protector. Nov. 24.

25,728. J. A. Torrens, Somerset Coleraine. Cover for pneumatic tires to prevent side slipping. Nov. 25.

25,973. The Eastern Produce and Estates Co., Limited, 115, Cannon street, London. Implement for "tapping" rubber trees. (T. P. Simpson, Ceylon.) Nov. 27.

25,001. A. Subron, Hull. Device for repairing pneumatic tires. Nov. 28.

26,109. W. Macaulay, Lorne, county Antrim. Pneumatic cushion, with air valve. Nov. 30.

26,110. J. Thomas and W. Smith, Roath, Cardiff. Rubber and leather heel. Nov. 30.

26,133. C. Andresvert, London. Apparatus for applying pneumatic tires. Nov. 30.

26,134. P. J. McGinn, Bulawayo, Rhodesia. Self acting pump for inflating tires on wheels while the same are in motion. Nov 30.

26,202. E. W. Wooders, Birmingham. Washers for revolving heel pads for boots. Dec. 1.

26,308. E. J. Price and T. Carey, Cardiff. Combination cushion heel piece, for boots. Dec. 2.

26,321. F. W. Rushbrooke and F. B. Tippets, London. Pneumatic tire for motor cycles and motor cars. Dec. 2.

26,374. J. C. N. Fomeloy, London. Pneumatic tire. Dec. 2.

26,469. M. Vivian, London. Elastic tire for vehicles. Dec. 3.

26,474. A. F. Allan and J. A. Lenhoff, London. Air brake hose coupling. Dec. 3.

26,519. P. A. Martin and D. A. Martin, Birmingham. Method of and means for applying covers to elastic tires. Dec. 4.

PATENTS GRANTED.

[ABSTRACTED IN THE OFFICIAL JOURNAL, DECEMBER 2, 1903.]

*17,060. (1902). Interlocking tile of rubber, for floors, walls, and ceilings. G. H. Bennett, New York.

17,061 (1902). Device for closing punctures in air tubes of tires. Turcat, Mery et Cie., Marseilles, France.

*17,144 (1902). Golf ball [with center formed by winding a strip of rubber, instead of a core of hard material, the cover being made of Gutta-percha]. E. Kempshall, Boston.

*17,181 (1902). Golf ball [formed by winding a strip of rubber over a celluloid core and enclosing the whole in a Gutta-percha covering]. E. Kempshall, Boston.

17,211 (1902). Pneumatic tire [involving means of attachment for increasing the lateral stability of the tire cover]. L. Johnstone, Blackley, near Manchester.

17,301 (1902). Golf ball [of alternate strips of India-rubber and Gutta-percha, with or without a central core, and enclosed in a Gutta-percha casing]. C. T. Kingzett, Chiselhurst.

17,398 (1902). Pneumatic tire [relates to the attachment of the thickened edges of the tire to rims with inturned edges]. H. Falconnet and M. Perodeau, Choisy-le-Roi, France.

17,586 (1902). Horseshoe pad. H. Walker and P. S. Walker, New Charlton, and J. Hamer, Plumstead, both in Kent.

[ABSTRACTED IN THE OFFICIAL JOURNAL, DECEMBER 9, 1903.]

17,637 (1902). Vulcanizing rubber boots and shoes. A. Cockburn, Edinburgh.

17,638 (1902). Molding water bottles and other goods of rubber. J. Cockburn, Edinburgh.

*17,734 (1902). Pneumatic tire [depending for resiliency on compressed gas enclosed in sponge rubber]. R. Haddan, London. (R. A. Kent, Joplin, Missouri.)

17,787 (1902). Pneumatic tire for vehicles. F. Toni, London.

17,811 (1902). Electric insulator [for high tension currents; formed of porcelain, and mounted on a stem of vulcanite secured in brackets fixed to the post]. K. S. Lemström, Helsingfors, Finland.

*17,917 (1902). Boot heel of leather and rubber. L. F. Small, Braintree, Massachusetts.

17,990 (1902). Stopper for milk bottles [involving a rubber cap]. N. M. C. Dupond, Besançon, France.

18,012 (1902). Pneumatic tire [rendered puncture proof by a strip of leather within the outer cover]. W. Saunders, Lochwinnoch, Renfrewshire.

18,134 (1902). Golf club [with resilient driving face]. C. H. Gray, India-Rubber, Gutta-Percha, and Telegraph Works Co., Limited, Silvertown.

18,135 (1902). Rubber coated thread of cord [designed for weaving the Palmer tire cover, described in THE INDIA RUBBER WORLD, January 1, 1904—page 131]. C. H. Gray, Silvertown, and T. Sloper, Devizes, Wiltshire.

[ABSTRACTED IN THE OFFICIAL JOURNAL, DECEMBER 16, 1903.]

18,198 (1902). Bottle stopper [including a rubber ring]. B. W. Glass, Belfast, New Zealand.

*18,505 (1902). Playing ball [for golf and the like; formed with an inflated center piece, wound with rubber thread under tension, and the whole enclosed in a shell of Gutta-percha]. E. Kempshall, Boston.

18,518 (1902). Pneumatic hub for vehicle wheels. W. H. Ireland, Birmingham.

*18,547 (1902). Cushion tire [formed in sections separately secured to the wheel rim]. G. Miller, Binghamton, New York.

*18,588 (1902). Golf ball. E. Kempshall, Boston.

*18,589 (1902). Golf ball. E. Kempshall, Boston.

18,595 (1902). Cushion tire [made in sections and secured separately to the wheel rim]. W. H. Sewell, Bangor, Ireland.

18,600 (1902). Bottle stopper [including a flat rubber washer]. R. Hill, Grimsby.

THE GERMAN PATENT RECORD.

PATENTS GRANTED.

148,266 (Class 63*d*). Appliance for setting rubber tires in the felloes. P. Uhlig, Dresden. Dec. 9.

148,508 (Cl. 28*b*). Rubber cover, for the work table of leather working machines. Baugh Machine Co., G. m. b. H., Frankfurt a/M. Dec. 16.

DESIGN PATENTS GRANTED [GEBRAUCHSMUSTER].

212,374 (Class 77*f*). Rubber bag connected with trumpet of edible material, with metal vibrating tongue attached. Frau Ernst, Oelbenna. Dec. 2.

212,729 (Cl. 12*f*). Siphon of soft rubber provided with dependent rubber ball. A. Kahlert, Hamburg. Dec. 9.

205,499 (Cl. 77*f*). Toy in form of closed rubber cylinder divided in the middle by a diaphragm in which are inserted musical reeds. Ungarishe-Gummiwaaren-Fabrik, A.-G., Budapest. Dec. 2.

PATENTS APPLIED FOR.

8,410 (Class 39*b*). Process for devulcanizing Caoutchouc. (Addition to patent No. 112,017.) A. E. J. V. J. Theilgaard, Copenhagen. Dec. 2.

8,194 (Cl. 39*d*). Process for rendering harmless the cellulose in Caoutchouc, Gutta percha and the like. *Same.* Dec. 9.

8,581 (Cl. 39*a*). Process for manufacture of hollow rubber goods. Dr. Heinrich Traun u. Söhne, Hamburg. Dec. 2.

17,517 (Cl 39*a*). Protective covering for use in the cold vulcanization of rubber goods. E. Frankenberg, Hanover. Dec. 9.

20,742 (Cl. 39*a*). Process for manufacture of rubber pumps. (Addition to patent No. 141,210.) Schlesische Gummiwaaren-Fabriken, Gustave Eichler, Bresslau. Dec. 9.

10,684 (Cl. 39*b*). Process for regenerating Caoutchouc. P. H. J. Chautard and Henri Kessler, Paris. Dec. 9.

8,574 (Cl. 21*c*). Protective covering for electric cables. Dr. Heinrich Traun u. Söhne, Hamburg. Dec. 5.

THE RUBBER SHOE JOBBERS WILL MAINTAIN PRICES.

THE sixth annual meeting of the Western Association of Shoe Wholesalers was held in St. Louis on January 5 and 6, including a banquet on the evening of the first day, tendered by the St. Louis Shoe Manufacturers' and Jobbers' Association, which was attended by about 150 wholesalers and guests. The officers were unanimously reëlected, as follows: Orlando C. Smith, of Chicago, president; George W. Freeman, of St. Paul, first vice president; S. W. Campbell, of Chicago, secretary, and an executive committee consisting of representatives of important jobbing houses in eleven cities. The business meetings were devoted principally to arriving at an agreement on rubber shoe prices for the current year. At the banquet the toastmaster was Erskine M. Phelps, of Chicago. President Smith, in his address, told the story of the beginnings of the association, which grew out of the determination of a few jobbers in Chicago to do what they could to discourage price cutting on rubbers. To-day the association has nearly a hundred members and covers the western states and the northwest, and out of it have sprung several other associations, in New England and elsewhere, and as a result of the whole a National association has been organized, the next meeting of which is to be held in Boston in February. An address was made by the Hon. David R. Francis, ex-governor of Missouri, and president of the World's Fair commission at St. Louis, who mentioned that his first employment was in the shoe store of an uncle in his native town in Kentucky. Addresses were made also by representatives of the New England, Middle States, and Southern shoe jobbers' associations. This was the first meeting of the association outside of Chicago, and the members were enthusiastic over the character of their entertainment at the hands of the St. Louis trade. The chairman of the committee on entertainment at St. Louis was George W. Perry, of the George W. Perry Rubber Co., of that city. Before leaving the city the visitors were taken through the World's Fair grounds, where they were photographed in a group.

The sentiment of the jobbers assembled at St. Louis was decidedly in favor of keeping up the standard of prices for the year 1904. Since the United States Rubber Co. have discontinued the practice of fixing the prices at which the jobbers shall sell rubber boots and shoes to the retailers, the jobbers through their associations have taken up the matter. The adoption of the resolution fixing the minimum price was practically unanimous—being adopted with a single dissenting vote—and was for the entire year, unless otherwise ordered by the executive committee, which has power, if the necessity arrives, to make proper price reductions. There will, however, be no indiscriminate price cutting, unless some members of the Association break faith, which is not at all regarded probable. The resolution adopted is as follows:

Be it Resolved, by the Western Association of Shoe Wholesalers, in convention assembled this fifth day of January, 1904.—That each member present does hereby agree and pledge himself and his house that he will sell rubber boots and shoes of any brand, either United States Rubber Company's or others, at a profit to ourselves of not less than—— and —— per cent., and that there shall be retained a profit of not less than —— and —— per cent. on the advanced cost of the goods on hand June 1. That we pledge ourselves to do this for the entire year 1904, or until further instructions are received from the executive committee of this Association, and that we will not deviate directly or indirectly from this.

[NOTE.—The rates of discount mentioned in the resolution, having been agreed to in executive session, are held in reserve here, out of deference to the wishes of members of the association.]

Included in the attendance, besides leading jobbers, were the following representatives of the rubber shoe trade:

Charles B. Allen, Chicago manager of the United States Rubber Co. and Boston Rubber Shoe Co.

George S. Miller, general sales agent, Joseph Banigan Rubber Co., Chicago.

Eben H. Paine, sales manager, United States Rubber Co., New York.

Charles A. Coe, selling agent, United States Rubber Co., Boston.

W. H. Jones, selling agent, United States Rubber Co., Baltimore.

F. F. Shaffer, superintendent Goodyear's India Rubber Glove Manufacturing Co., Naugatuck, Conn.

E. I. Aldrich, selling agent, Hood Rubber Co., Boston.

A. F. Solberg, selling agent, Boston Rubber Shoe Co., Boston.

Chester J. Pike, selling agent, Hood Rubber Co., Boston.

E. R. Rice, manager of branch stores, United States Rubber Co., New York.

J. E. Coulter, selling agent, Grand Rapids Felt Boot Co., Grand Rapids, Michigan.

A. D. Warner, superintendent, Beacon Falls Rubber Shoe Co., Beacon Falls.

E. G. Studley, Grand Rapids Felt Boot Co., Grand Rapids, Mich.

BY OUR CHICAGO CORRESPONDENT.

THE members of the Chicago rubber trade who attended the convention of the Western Association of Shoe Wholesalers at St. Louis, on January 5 and 6, express themselves as well pleased with the success of the attempt that has been made to guard against price cutting. The rules and agreements which were in force last year were continued for another year. There has been some disregard for the agreements on the part of individuals. Those in attendance, however, declare the present system is far ahead of the old method of contracts with a restriction clause, between the manufacturer and the jobber.

There was less cutting last year, according to all reports, than during the previous year. While the association does not include anywhere near all the jobbers in its territory, it has accomplished a great deal in bringing about a uniform price on rubber goods for the protection of all concerned, and to secure to each a fair profit.

But the question of uniformity of prices is not the only matter in the interest of the trade with which the association has concerned itself. Another thing that is being urged is a classification of shoes as second class freight, instead of first class, without the necessity of extra expense in packing.

Chicago again captured the presidency and secretaryship, and the headquarters of the association will remain in this city another year as a consequence. President O. C. Smith, of the Smith-Wallace Shoe Co., who has held the position of chief executive of the association for five years, was reëlected. S. W. Campbell, of Chicago, who has held the position of secretary for five years was reëlected, while George W. Freeman, of St. Paul, was elected first vice president. The association has had but two presidents since its organization, K. L. Barton, of Kansas City, being the first, and Mr. Smith the second.

At the banquet in St. Louis, President Smith said, in his annual address: "One subject that has been discussed at this session is the classification of freights. We think that shoes should not be charged the highest possible freight rate, as first class freight, but should be classified as second class. The railroads offer to so classify shoes, but insist upon our strapping the cases, thus adding a heavy expense to the packing item. Another subject is the practice of dating ahead many bills. There

should be some rule governing this. We formerly got from 10 to 15 per cent. more than we do to-day, but in some cases the old dating method is in use."

BY OUR NEW YORK REPORTER.

EXPRESSIONS by many of jobbers gathered at St. Louis indicated that the demand for rubber boots and shoes during the season has been larger than ever before, and it was also the general opinion that the stocks now in retailers' hands are small. Throughout the northwest, especially, the demand seems to be steadily increasing, and opinions differ as to whether this is principally on account of the increase in population, or whether there is a more general use of rubber shoes.

In speaking of this growth of demand, Mr. Eben H. Paine, of the United States Rubber Co., said: "Our business for 1903 was not only the largest since the organization of the company, but was about 30 per cent. greater than for any other year. The demand for rubber footwear has been steadily on the increase. This is true in regard to both boots and shoes, although in New York and its vicinity the demand for boots seems to outrun in growth the demand for shoes. This is probably because of the increased efficiency of the street cleaning department, and the amount of public work going on which requires extra protection. Although crude rubber was high at certain periods last year, the profits on the goods sold averaged fully as large as usual. I do not know anything definite about the stocks in hand in the country, but from the reports received we are rather inclined to believe that they are light. Inquiries since the first of the year have been good and this indicates that stocks are low, because January and February are our dullest months as a rule, since the dealer who is not entirely out of stock prefers to wait until later before buying."

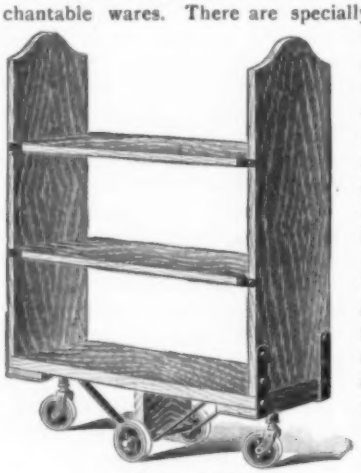
Mr. William Morse, president of the Merchants Rubber Co. (New York), said in regard to the rubber footwear trade: "Our business for last year was by large odds the most satisfactory we have ever known, not only in rubber boots and shoes but also in rubber clothing. This is especially true with regard to overcoats. Since the first of the year our orders have been at least 20 per cent. larger than last season. This certainly seems like a good beginning for the coming year. There is no doubt that rubber clothing is growing in popularity and there seems to be a steady but unending growth in the demand for footwear. The price of rubber doesn't make any difference to us. That's the manufacturer's lookout."

RICHARD BUTLER SCHOLARSHIP.

THE trustees of Columbia University, New York, have established the Richard Butler scholarship, open to competition to men students born in the state of Ohio. The holder of the scholarship may at his option enter Columbia College, or may study under any one of the graduate schools of philosophy, political science, and pure science, or one of the professional schools of law, medicine, applied science, and architecture. His appointment shall be for one year only, but may be renewed for reasons of weight for two additional years. The scholarship was endowed in memory of Richard Butler, by his widow. He was born in Birmingham, Ohio, in 1831; he came to New York as a boy and became successful as a merchant, and later in the manufacture of hard rubber. He was president of the Butler Hard Rubber Co. until its merger with the American Hard Rubber Co., and afterwards a director in the latter. Mr. Butler was one of the founders, and for many years a trustee, of the Metropolitan Museum of Art. He was a member of the New York Chamber of Commerce, and a chevalier of the Legion of Honor.

RUBBERED WHEELS FOR TRUCKS.

THE use of rubber on the wheels of trucks must be very considerable, judging from the great number and variety of these articles employed in the handling of merchandise wherever modern business conditions obtain. In stores and warehouses of whatever type, trucks are employed in the removal of goods—trucks of two, or three, or four wheels, and often made, as to size, shape, and strength, so to adapt them particularly to the kind of goods to be handled. There are trucks for heavy or light dry goods, for groceries, paper, books, seeds, metals, raw cotton, and so on through the list of merchantable wares. There are specially made trucks for the transfer of books from one portion of a library to another. There are special trucks for post-office use, for hotel baggage, for banks—dozens and scores and hundreds of trucks; of plain or handsome finish; all at prices to correspond. There is nothing new about the use of trucks, but there has been a steady increase in the demand for rubber tired wheels for these devices (1) to protect floors, (2) to render the use of the trucks easier, or (3) for the avoidance of noise. Rubber bands are not adapted to the wheels of all trucks, of course; there are "hot metal trucks," for instance, used in tinplate mills and in other situations where a wooden truck would not serve. But in a great variety of situations the rubber band is desirable and has come into use. It is interesting to notice in the catalogue of a single manufacturer of trucks, no fewer than 230 priced items of "rubbered" wheels, the choice being offered to the purchaser of wheels with or without rubber. There are single wheels listed as large as 16 inches in diameter and 4 inches face, and in price as high as $12.75—subject, of course, to discount.



LIBRARY TRUCK.
With Vulcanized Rubbered Wheels, 5x1¼ inches.
[Made by The Fairbanks Co., New York.]

Unlike most applications of rubber, the rubbered truck wheel does not seem to have profited any inventor or patentee. In THE INDIA RUBBER WORLD of May 1, 1902 (page 250) appeared a contribution from Mr. Henry W. Kellogg, reporting the first use of rubber bands on truck wheels, to his knowledge. In 1865, while he was laying the marble floor of the New York Stock Exchange—the building that was replaced last year—it occurred to him that some means could be found to prevent the damage done to the floor by iron truck wheels running over it. He made a sketch, therefore, of a wheel with a rubber band, which he submitted to the merchant prince, Alexander T. Stewart, who was interested in the building of the Exchange, and the idea was at once adopted. The only idea then was to bridge over a single difficulty, and it occurred to no one to apply for a patent.

REPORTS have reached Akron that Mr. H. C. Corson, formerly of The B. F. Goodrich Co., and who is in Paris, under treatment for snow blindness, is improving. He recently sent check for $100 to the poor department of Akron—an annual donation which he always made while living here.

AMERICAN CONSUMPTION OF INDIA-RUBBER IN 1903.

THE past year was an exceptional one in the rubber industry, as has already been pointed out in these columns. As will appear from the table at the bottom of this page the imports of crude India-rubber into the United States during 1903 exceeded by more than 1500 tons the largest figures for any previous year, being just 50 per cent. greater than the imports 10 years ago. It may be mentioned, by the way, that the figures herewith, although compiled by private statisticians in the trade, compare very closely with the custom house statistics of arrivals. Not only were the receipts exceptionally large, but the deliveries for consumption were correspondingly great, leaving the stocks smaller at the end than at the beginning of the year. On December 31, the stocks here were, according to this table, 256 tons, of rubber of all kinds, whereas the average stocks for ten years previous had been 861 tons. These figures, by the way, do not include Guttapercha, Balata, or the cheaper East Indian gums. The record of consumption relates to Canada as well as the United States, since the greater part of the requirements of rubber manufacturers in the Dominion are imported via New York.

From the same source is obtained the following comparative statement of prices of fine Pará rubber in New York and Liverpool, for ten years past:

YEARS.	New York	Liverpool.
1894	64½@ 73	2. 9 @3. 1
1895	70 @ 81½	3. 0¼@3. 4¼
1896	71 @ 85	3. 0½@3. 8¾
1897	79½@ 89	3. 5 @3. 9
1898	82 @1.06	3. 7½@4. 5
1899	91 @1.10	3.10 @4. 7¼
1900	83 @1.11½	3. 8½@4. 9
1901	76 @ 95	3. 4 @3.11½
1902	66 @ 92	2.10 @3. 9½
1903	78 @1.13	3. 6¼@4. 8

The next table analyzes the imports of crude rubber into the United States by grades, the figures denoting tons:

YEARS.	Fine Pará	Coarse Pará.	*Centrals.	African and E. I.	Total.
1897	7,556	2,935	2,404	4,776	17,671
1898	6,804	2,935	3,003	5,878	18,620
1899	8,622	3,876	3,440	7,157	23,005
1900	8,079	3,906	3,020	5,463	20,468
1901	9,304	3,838	2,927	7,139	23,208
1902	8,666	4,235	2,588	6,353	21,842
1903	9,325	4,609	3,040	7,786	24,760

[* Including Caucho and Pernambuco.]

The percentage of the various grades in the imports into the United States were as follows:

	1902.	1903
Pará fine	39.64	37.63
Pará coarse	19.40	18.63
Centrals, Caucho, and Pernambuco	11.86	12.29
African	29.10	31.45

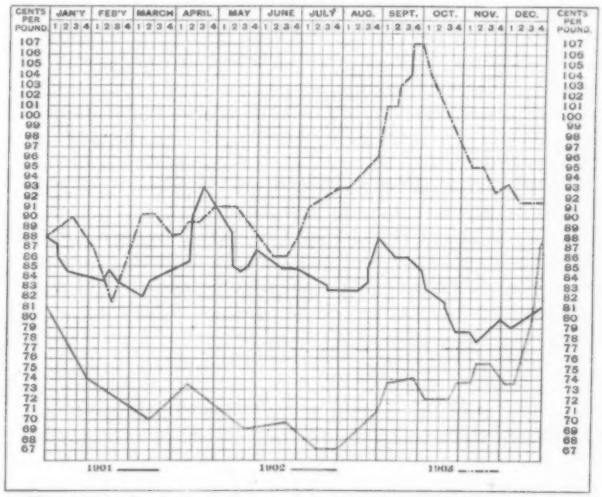
The percentage of fine Pará in the imports of previous years was as follows: 39.64% in 1902; 40% in 1901; 39½% in 1900; 37¼% in 1899; 36½% in 1898; 43¼% in 1897; 45½% in 1896; 44% in 1895; 46¾% in 1894; 44¼% in 1893.

The figures in the next table, showing the extent of the world's visible supplies of rubber on January 1, 1904, have been derived from the Messrs. Morse's tables, though they are given on this page in pounds instead of tons, in order that they may be compared readily with former tables:

	Pounds.
Stocks in the United States	573,440
Pará grades	154,560
Central American and Caucho	17 920
African and East Indian	400 960
Stocks in Europe	4,724,160
Pará grades	1,290,240
All other	3,433,920
Stocks Para grades at Pará and afloat	6,025,600
Total	11.323,200
Total, January 1, 1903	12,221,440
Total, January 1, 1902	15 028,160
Total, January 1, 1901	16,616,320
Total, January 1, 1900	10,251 480
Total, January 1, 1899	10,215,440
Total, January 1, 1898	9.920 960
Total, January 1, 1897	10,673 600

RUBBER PRICES FOR THREE YEARS.

DIAGRAM showing fluctuations in spot prices at New York of Islands, Pará fine rubber during 1901, 1902, and 1903 [copyrighted 1904 by Henry A. Gould.]



[THE topmost line indicates the course of prices in 1903, the middle line 1901, and the lowest line the range for 1902.]

CONSUMPTION OF INDIA-RUBBER BY THE UNITED STATES AND CANADA (IN TONS).

[From the Annual Statistical Summary of ALBERT T. MORSE & Co., brokers, New York.]

DETAILS.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
Imports to United States	12,942	14,263	16,152	15,347	16,420	14,643	16,182	14,333	17,671	18,620	23,095	20,468	23,208	21,842	24,760
Exports to Europe	116	231	982	491	714	391	324	500	250	150	300	450	680	430	490
Net Imports	12,826	14,032	15,170	14,856	15,706	14,252	15,858	13,833	17,421	18,470	22,795	20,018	22,528	21,412	24,270
Add Stock January 1	1,609	746	1,260	1,086	1,217	1,037	1,420	558	641	744	591	712	1,198	1,399	331
Aggregating	14,435	14,778	16,430	15,942	16,923	15,289	17,278	14,391	18,062	19,214	23,386	20,730	23,726	22,811	24,601
Less Stock end of year	746	1,260	1,086	1,217	1,037	1,420	558	641	744	591	712	1,198	1,399	331	256
Deliveries to Manufacturers	13,689	13,518	15,344	14,725	15,886	13,869	16,720	13,750	17,318	18,623	22,674	19,532	22,327	22,480	24,345

RUBBER PLANTING INTERESTS.

THE ISTHMUS RUBBER CO. OF UBERO.

[Plantation near Ubero, state of Oaxaca, Mexico. Offices: No. 29 Broadway, New York.]

AT a special meeting of the shareholders, at the office of the company, on January 15, the following directors were elected: J. Oliver Stokes, Edgar B. Bronson, W. I. Overstreet, James C. McCoy, James Harold Warner, Francis H. Ross—all of New York; William D. Owen and E. E. Silver, Boston; Jonathan H. Blackwell, Trenton, N. J.; H. H. Ward, Wilmington, Del.; Bertis McCormick, Terre Haute, Ind.; Alfred A. Pocock, Hartford, Conn.; Caleb B. Leach, Middletown, Conn.; and Joseph E. Nute, Fall River, Mass. It was resolved to modify the contract with the company engaged in developing the plantation so to plant, during the time covered by that contract, an acreage of rubber and citrus fruit trees equal to and instead of the number of acres originally intended to be planted in coffee, pineapples, and sugar cane. The secretary's reports gave in detail the number of shares outstanding, showing a large increase in the monthly income of the company, and also a favorable statement from the general manager, Mr. Frank H. Ross, of the progress on the plantation. The experimental planting of rice had proved so satisfactory that a large amount would be planted during this year as a profitable quick crop.

LA ZACUALPA RUBBER PLANTATION CO.

[Plantation "La Zacualpa," near Tapachula, Soconusco district, state of Chiapas, Mexico. Offices: No. 713 Market street, San Francisco.]

THE recently published report on "The Culture of the Central American Rubber Tree," by Mr. O. F. Cook, of the United States department of agriculture, having contained a number of references to "La Zacualpa" rubber plantation, in Mexico, these sections have been reprinted by the company in a pamphlet entitled "The Success of La Zacualpa Rubber Plantation," together with reproductions of a dozen photographs, taken on that property, which figure in the government report. The whole is accompanied by notes by Mr. O. H. Harrison, resident director of the plantation, at Tapachula, pointing out in what respects the choice of location, character of soil and climate, method of planting, etc., on "La Zacualpa" are in accordance with Mr. Cook's suggestions as to the best practice, based upon his observations in the land of the *Castilloa* rubber tree.

JOLIET TROPICAL PLANTATION CO.

[Plantation "Joliet," Tierra Blanco, state of Vera Cruz, Mexico. Office: Joliet, Illinois. See THE INDIA RUBBER WORLD, September 1, 1903—page 426.]

THE first annual inspection report, by the Rev. D. T. Robertson, the stockholders' inspector, dated December 11, 1903, has appeared in a pamphlet, together with other details for the stockholders. It mentions the planting of 30,000 rubber trees to date; the second crop of corn growing; additions to the number of cattle, with good prospects of profits from grazing; and progress in clearing, fencing, and the erection of permanent buildings. For several months past no effort has been made to sell additional shares, for the reason that the present monthly income suffices for the development work and to take care of maturing payments on the land. Mr. Robertson visited several neighboring rubber plantations, some of several years standing, and the managers of which have been free in putting the results of their experience at the disposal of the "Joliet," and after seeing the progress made on the older estates, he is confident of ultimate success. He writes: "I am satisfied that we have a good prospect in rubber. I do not, however, expect results from rubber in less than 8 years, and would rather place the date at 10. Let this discourage none of our shareholders, for we should be receiving good returns from our money long before that time from cattle and side crops."

LA NUEVA PROVIDENCIA RUBBER CO.

[Plantation "La Nueva Providencia," department of Escuintla, Guatemala. Office: Providence, Rhode Island.]

AT the annual meeting, on January 13, the officers were re-elected: Edwin H. Snow, president; Leo F. Nadeau, secretary and treasurer; Clyde E. Gardner, general manager. The company was incorporated January 8, 1903, for the purpose of growing rubber on an estate of 2000 acres, which it owns in Guatemala. The secretary reported that 45 000 rubber trees had been planted, of which 20,000 were about 18 months old and the remainder 6 to 8 months old.

RUBBER PLANTING IN KAMERUN (WEST AFRICA.)

UNDER the name Kautschuk-Pflanzung "Meanja" Actiengesellschaft, a plantation company was formed in Berlin on November 17, with a branch at Victoria (Kamerun). The capital is 1,000,000 marks [=$238,000]. The object of the company is to take over the Meanja Plantation, Limited, and cultivate with *Kickxia elastica*. The board of officers consists of Dr. Esser, Berlin, president; Dr. jur. Herman Hösch, Düren, vice president; Dr. jur. Alb. Ahn, Cologne, and three Berlin gentlemen. Herr Max Zitzow, Berlin, is director and the management in Kamerun is attended to by plantation director, Leo Treichel. It is pleasing to note, says the *Gummi-Zeitung*, that after a somewhat long pause capital is again reverting to the Kamerun plantations. The following Kamerun plantation companies have increased their capital during 1903: West Afrikanische Pflanzungs-Gesellschaft "Victoria," by 500,000 marks; Lisoka, Molyko, and Bolifamba plantations each by 100,000 marks; so that on the whole the working capital on the Kamerun mountains has been increased during 1903 by 1,800,000 marks [=$428,000.]

THE NEW CEYLON RUBBER PLANTING COMPANIES.

THE prospectus of the Seremban Estate Rubber Co., Limited, mentioned in the last INDIA RUBBER WORLD as having been formed in Ceylon to acquire a plantation in the Federated Malay States, was issued October 10, 1903. Of the authorized capital of 1,000,000 rupees, an initial issue was made of 475,000 rupees [=$154,106], in addition to the shares issued to the vendors, and *The Tropical Agriculturist* states that this amount was well oversubscribed before the application list had been open three days. The company has been floated entirely with Ceylon capital, though the estate is in another colony. Our contemporary says: "This is practically the first rubber company of its kind, and will no doubt form a basis on which many other companies may come out."

Regarding The Golconda Estate Rubber Co., Limited, also mentioned last month as being formed in Ceylon to acquire a plantation in the Malay states, *The Tropical Agriculturist* mentions that already there are 100 acres on the premises planted to Pará rubber and cocoanuts.

SOUTHERN PROVINCE CEYLON TEA AND RUBBER CO., LTD.

THE articles of association of this company were gazetted December 11. The objects are to acquire the Mawinadola and Ginidomine estates of the Udugama Tea and Timber Co. (in liquidation), including tea factory and machinery. The original capital is 1,000,000 rupees [=$327,673]. The registered office is at Colombo.

RUBBER PLANTING COMPANY PUBLICATIONS.

LA Zacualpa Rubber Plantation Co., San Francisco.=(1) The Success of La Zacualpa Rubber Plantation [with extracts from the report of Orator F. Cook, of the United States department of agriculture]. 32 pages. (2) Report of O. H. Harrison, resident director at Tapachula. 8 pages.

THE RUBBER TRADE IN CHICAGO.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: This has been an exceptional winter in Chicago, and as a result the rubber trade in more than one branch is in a satisfactory frame of mind. The rubber shoe trade has been especially benefited. While the Chicago local trade in rubber footwear has been heavy, the trade has also been good in the western and northwestern territory supplied from Chicago, though the really heavy snowfall has been confined to this city and its vicinity, extending only a few miles west and south. The weather, however, has been sufficient to make the demand for rubber footwear so great that the manufacturers' agents in this city have had their hands full in supplying the jobbers, and they in getting the goods into the hands of the hundreds or thousands of retailers.

The demand for light rubbers in Chicago has been unprecedented, for the early part of the winter. This, of course, is directly traceable to the weather. Usually Chicago is without a really heavy snowstorm until the latter part of winter, and this year the snow was at least five weeks ahead of schedule time. The snow came unannounced by the weather bureau, and blocked city and suburban traffic and transportation lines. It compelled thousands of people accustomed to use the surface lines of cars to walk to the elevated lines of cars, and the result was a perfect rush to the stores for rubber shoes. The retailers were unprepared for such a demand, and their stocks were soon depleted. This was especially true in the big department stores, which have an immense trade in the lighter grades of rubber footwear. As a result of such demand, the jobbers were importuned to rush the work of filling orders.

In this connection the statement of Mr. Charles B. Allen, Chicago selling agent of the United States Rubber Co. and the Boston Rubber Shoe Co., is of interest. Mr. Allen estimates that the jobbers in Chicago handle between $4,000,000 and $5,000,000 worth of rubber footwear each year. Of this amount fully $500,000 reaches the consumer through the big mail order houses and the department stores, the latter distributing it to the local consumers, while the mail order houses supply consumers all over a number of adjacent states.

"We simply cannot supply the demand for the lighter grades of rubber shoes," said Mr. Allen. "Our Chicago trade is always large, and it is increased greatly in a season like this because we are the only manufacturers maintaining an emergency stock here from which to supply jobbers, making Chicago a distributing center. This general trade has been augmented considerably by the local demand on the jobbers for rubbers as a result of the heavy snowfalls early in December, which has been added to by more recent storms. This snow is confined almost entirely to Chicago and its vicinity, and hence the trade from the west, north, and south must be attributed to other causes. Later storms may have an exhilarating effect on the demand for rubber footwear.

"Last year we had a good winter, December showing the largest single month's business we have ever had in this line. The fall of 1902 was unusually good. The spring of 1903 was favorable, and then the floods came. It rained more or less all through the summer. As a result the country dealers found their stock at the close of their spring business depleted. It is doubtful if their stock has been cleaner and lighter in many years than it was at the close of the last season.

"Hence, when the country retailer came to stock up again he ordered in larger quantities than usual, and the jobbers' orders were correspondingly heavier. This has made the mills busier than they have ever been. They could not begin to supply the demand. Because of our emergency stock here we have been better equipped to care for the rush orders. We carry from thirteen to fifteen brands of footwear here, and this is important to every western jobber handling rubber shoes.

"In regard to the local trade proper, all I can say is that the jobbers are almost too busy to talk. The number of small dealers indicates the volume of business done in Chicago during a snowstorm, and immediately following. I will give you an experience I had thirteen years ago, when I first came here. I thought it wise to send circulars to the various retail shoe dealers. I got the list and found there were between 2000 and 3000 dealers in Chicago who handled rubber shoes. They have multiplied rapidly since then, and in addition the big department stores have grown, so you can get an idea of what it means to supply all these retailers."

* * *

AMONG the manufacturers and selling agents of mechanical rubber goods, there is a wide difference in opinion as to the outlook. Some are inclined to be somewhat pessimistic, but other concerns are inclined to take the other view of the situation; their faith in the future has been shown by the running of their factories on full time, making goods which they expect to have orders for later. In the latter class is T. F. Blanchard, manager of the Mechanical Rubber Co. Mr. Blanchard is one of those conservative men who seldom talks for publication and for that reason his views are of interest. He says the jobbers are late this year in sending in specifications, but he is confident that the manufacturers will have a good year. Mr. Blanchard said:

"As an indication of how well grounded is our faith in the future, we are going ahead and are manufacturing for a good year, believing that the jobbers will soon send in their specifications with a rush, and then we will be prepared to look after this trade and fill orders promptly. Of course if we are mistaken in our judgment of business conditions we will simply have to run short time later on. But I see nothing to indicate that this will not be a good year, notwithstanding the hesitation of buyers during the first month."

* * *

THE managers of the local branches of the rubber tire factories are preparing for an immense trade this season. It is predicted that the automobile business in Chicago and its vicinity will exceed that of the bicycle business this year. The gain last year in this branch and the orders already booked for the season clearly warrant this belief.

Several automobile manufacturers have sold their entire output, with the exception of a few machines held in reserve for duplicate orders. Thomas B. Jeffery & Co. (Kenosha, Wisconsin), manufacturer of the "Rambler," entered at this year's shows an exhibit surmounted with a banner announcing that they have no automobiles in stock for sale.

The automobile orders so far this season have shown a tendency toward heavier cars. There will be a large number of heavy four cylinder cars in use in Chicago this season. Last year there were not to exceed ten four cylinder machines in the entire city. The tires on these big touring cars run into money rapidly, and it is this kind of orders the manufacturers are seeking.

Local managers of concerns making automobile and bicycle tires are pleased rather than otherwise over the continuation of small snowstorms which followed the heavy one about the middle of December, because they feel that it means an early and open spring, and everyone familiar with the tire trade knows

the value of pleasant weather during the early riding season, especially in Chicago.

* * *

WHILE cycling has been at low ebb in Chicago for three years at least, the demand for the country trade and western cities has been good. It has been the belief each year that the trade would revive in Chicago. It did increase some last season, but was far behind former big years. Local dealers say that the trade this year will depend much upon the weather. If Chicago has an early and open spring, cycling is expected to become more popular than it has been for years, and this is what the tire men are hoping for.

The heaviest bicycle trade in Chicago last season was carried on through the mail order houses, one house having handled 75,000 pairs of bicycle tires last year. But even this was a decided falling off in trade as compared with the showing for 1899, when this same concern handled 90,000 wheels, and tires considerably above that number. This trade extends all over the world, but it is exceedingly large in the west and south.

* * *

TO get back to footwear, local dealers say that the trade rivalry between St. Louis and Chicago has led the merchants of the former city to boast that the general shoe trade carried on there is larger than that done in Chicago. But despite that fact, according to those familiar with the rubber shoe business, St. Louis can never come "within a gunshot" of Chicago in the volume of business done in rubber footwear. Chicago has always been a large rubber center.

* * *

THE Chicago headquarters of the Joseph Banigan Rubber Co. will be removed on February 1 from Monroe street near Market to Nos. 131-133 Market street, to store rooms better adapted to the needs of the trade. The agency here is now in charge of Mr. George S. Miller, late of the New England Rubber Co., of Boston.

Mr. Samuel M. Engs, resident manager of the Bowers Rubber Co. (San Francisco), left during the middle of the month for a tour of the trade in the northwestern, central, and southern states.

THE RUBBER TRADE IN AKRON.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The fact that the tire manufacturers here had no rest last season was commented on recently in these columns, but they will not be able to make the same claim for 1904, as the first month of the year finds them without a special rush of orders. It is probable that different manufacturers will be found to assign different reasons for the present condition of affairs. An official of one important concern expressed himself to your correspondent as follows:

"The selling pool is responsible for the lack of business at this time. Before it was formed it was customary for tire manufacturers to sell goods in January to the automobile makers, and allow them to pay for the tires in March. The selling pool has put a stop to this practice. Now, if the automobile maker wants tires he must pay for them in 30 days or give his note. In the latter case he will have to pay interest, and he objects to this. In the former case, he is tying his money up in tires which he will not be able to sell until the automobile trade opens in the spring. Naturally he won't do this.

"My idea is that about the time the automobile trade opens up there will be such a demand for tires that by working day and night the tire manufacturers will hardly be able to supply it. There is nothing wrong with the tire trade. To my mind this is a logical conclusion, and when spring comes we will see such an enormous trade in automobile tires that all records will be broken. More automobiles will be sold this year than ever before, and more tires, of course, will be needed to supply them. There is just one feature of the selling pool which is wrong. That is, the price of tires is too low. It is true that the pool raised prices a little, but it did not raise them enough. Automobilists have not yet been educated properly in the use of tires, and until they are—or better still, until the selling pool boosts the price a little—too many poor tires will be marketed, and these are the bane of the manufacturers' existence. The automobilist does not realize that it is cheaper to pay a little more for good tires than to buy poor ones and have to replace them in a very short time.

"But, as I said before, the user has not yet been educated, and until he is, the tire manufacturer will have to put a poorer quality of material in his tires. Of course we sell a great many good tires, but they are bought by men who have come to a realization of the fact that poor tires are not cheap tires. I could cite a number of instances where we have been ordered to produce a set of good tires, no matter at what cost. When we receive an order like that we put in the best material we have, and the result is a set of tires which will outwear three ordinary sets, at a comparatively small cost over the price of the poor ones. Every tire maker is using the best material he can considering the price he is getting for his product, but the trouble is that the price is too low and the user suffers. 'The poorer the quality the dearer the tire,' is a homely statement which should be pasted in every automobilist's hat.

"There are a few companies who are turning out tires which are really good, but they are not making any money on them. They are preparing for the future. They realize that when the time comes that owners of automobiles begin to realize that good tires mean cheap tires, they will be rewarded. Although every tire maker realizes that such a course will in the end inure to his benefit, not all of them have the courage of their conviction. Last year one rubber company lost $40,000 on a contract from a single automobile manufacturer, because their tires were made from such material that nearly all had to be replaced. The company received a 'black eye' to which they were not entitled, simply because they could not get the right prices for their goods, and other instances could be related of the troubles of the tire maker, in this era of cheap tires.

"The selling pool can, and will, I think, correct this evil before long. But the evil which demanded the most urgent attention when the pool was formed, was the practice of manufacturers of automobiles of suiting themselves in regard to the size and weight of tires used on their machines. The automobile maker made all kinds of money, and the user and tire maker suffered. For instance, suppose the manufacturer would receive an order for a car, and the specifications should call for a 4 inch tire. He would place a 3 inch tire on the car, charge the buyer for the larger size, and pocket the difference. He argued that it was none of his business if the user of the tire did not get good results, and was willing to have the buyer and the maker fight out the tire question. Naturally the tire would not wear as well as the larger tire would have worn, and the maker would have to replace it. The selling pool put a stop to this practice, and as soon as it adds enough to the price of tires to enable the manufacturer to put better material into his tires, it will have accomplished its purpose. The tire manufacturer does not want the additional amount as profit; he simply wants to turn out a tire that will stand the wear and tear of hard usage, and will be a credit to him."

HAVE the rubber manufacturers at last solved the problem of speed in tire construction? The question is one which naturally appeals to the interest of automobilists. At least The Diamond Rubber Co. claim to have reached a point in tire development where they can be reasonably certain of being able to turn out any number of tires, all equally fast. What is of particular interest is the ability to supply a set of tires, each one of which shall be as fast, and no faster than the others.

"Up to this time," said an official of this company, "rubber manufacturers have constructed their tires for racing on a hit and miss plan. They never knew until the tires were tested whether one of a set would be faster than the others or not. In turning out a set of automobile tires for racing no one could tell to a certainty whether all would be fast. They had to be tested. Now we know to an absolute certainty just how fast our racing tires are. We know the secret of making racing tires uniform in speed, and it will open a new era in the manufacture of fast tires."

The Diamond Rubber Co., by the way, made the tires used on the Packard "Grey Wolf" which, at Daytona, Florida, on January 4, broke all American records by running a mile in 46 2 5 seconds and a kilometer in 29 2-5 seconds. These are also world's records on cars of its class. As illustrating the terrific strain to which tires are subjected in speed trials of this sort, it may be noted that the track of the "Grey Wolf" in the sand showed that very frequently the car was absolutely clear of the ground. These leaps covered distances as great as eight feet by actual measurement. As their sudden release from resistance increased the rapidity with which the wheels revolved to an almost incredible extent, the effect upon the tires when the car again struck the sand and obtained traction may easily be imagined.

* * *

JACOB PFEIFFER, JR., president of the Miller Rubber Manufacturing Co., of Akron, has filed a suit in the common pleas court here, praying for the recovery of 189 shares in the company, of the par value of $50 each, issued to Harvey L. Miller, and for an injunction to prevent a transfer of the shares by Mr. Miller while the case is pending. The complaint alleges that the shares in question were allotted to Miller without any payment for the same, on the understanding that he was to remain in the employ of the company, instead of which he has since gone to the Canton Rubber Co., where he is using information gained from his former employers, to their detriment. Later The Miller Rubber Manufacturing Co. filed a suit in the common pleas court of Stark county, against the Canton Rubber Co., alleging infringement of the trade marks of the former company as applied to rubber gloves, face masks, and the like.

* * *

THE receiver of the People's Hard Rubber Co., James W. Hoffert, has filed his final report in the probate court at Akron. He states that he received from the sale of personal property $85,000; sale of desperate claims, $100; on collections, etc., $10,557.52; a total of $95,657.52. For disbursement to general creditors there will be $91,381.02, which, the assignee states, will pay a dividend of 71.485 per cent. The real estate of the defunct company some time ago brought $80,000. The People's Hard Rubber Co. was incorporated in 1901, with $200,000 capital; the factory was closed in November, 1902, and an assignment followed in December.

* * *

THE plant of the Superior Rubber and Manufacturing Co., at Cuyahoga Falls, is not yet in operation, although its promoter, Mayor E. M. Young, of that town, had promised that it would be in operation by the first of the year. All of the machinery has not been installed, and according to the latest statement of Mayor Young, the company will be reorganized, a large number of the original stockholders having failed to pay for their stock. It is understood that an effort will be made to secure capital in the East.

* * *

THE Swinehart Clincher Tire and Rubber Co., of Akron, was incorporated January 14, under Ohio laws, with $100,000 capital by James A. Swinehart, F. Siegrist, Frank Kearns, Henry Feuchter, and Ben. O. Swinehart, to exploit a new solid rubber tire patented by the first named. Although the organization of the company has not been completed, offices have been opened in Akron and the work of securing a market for the tires begun. It is intended, in time, to build a factory, but at present the company will contract for the manufacture of their tires. This is the first solid tire, for automobile use, so constructed as to fit G & J clincher rims, and it is pointed out that this rim, by reason of its lightness, has advanages over tthe heavier channel used with other solid tires. The side wire is used, as in the Firestone tire, but in the Swinehart tire it extends but half way into the tire. A wire is also run around the rim in the center of the tire, but this has no part in keeping the tire on the rim. In case it is necessary to remove the tire, the middle wire, which is made of soft metal, is melted by the application of electricity, it in turn melting the cement, and allowing the tire to be pulled from the rim. This is a feature seen in no other solid tire, according to the claims of the Swinehart company. The tire tread is corrugated, and great things are claimed for it.

* * *

THE annual meeting of The B. F. Goodrich Co. was held on January 13, and resulted in the reëlection of the old officers, as follows: George T. Perkins, president; Bertram G. Work, vice president; George W. Crouse, second vice president; R. P. Marvin, secretary; W. A. Folger, treasurer; W. A. Means, assistant treasurer; F. H. Mason, general manager of works. These officers, in connection with Charles C. Goodrich, compose the board of directors. The reports for the year, it is understood, proved to be very satisfactory.

At the annual meeting of the Summit Rubber Co. (Barberton), held on January 12, the following officers were elected: C. A. Brouse, president; A. Warner, vice president; Mrs. Della Warner, treasurer; E. M. Hollinger, secretary. The directors are E. M. Hollinger, C. A. Brouse, A. Warner, George B. Spencer, Mrs. Della Warner.

Trouble between the employers and the iron molders of the city this month resulted in the J. K. Williams Machine Co., manufacturers of rubber machinery, closing their foundry department for a few days. The molders went out because of a decrease in wages which took effect at the first of the year, but those in the Williams company's plant have returned to work.

Among the Akron men who attended the New York automobile show were Messrs. W. B. Miller, of The Diamond Rubber Co.; H. E. Raymond, of The B. F. Goodrich Co.; L. E. Sisler, H. S. Firestone, and S. G. Carkhuff, and J. M. Gilbert of the Firestone Tire and Rubber Co.; C. W. Seiberling and H. J. Dingman of the Goodyear Tire and Rubber Co., and A. J. Swinehart, of the new Swinehart company.

Mr. Frank A. Seiberling, general manager of the Goodyear Tire and Rubber Co., has returned home from a visit of several weeks in the south.

THE TEXTILE GOODS MARKET.

SINCE the last issue of THE INDIA RUBBER WORLD, staple cotton has passed 15 cents, and there is nothing in sight that threatens to impede its upward course. The nervousness which lately prevailed in the cotton market has given place to confidence such as existed prior to the remarkable series of fluctuations which followed the publication of the government's December crop estimate. Belief in still higher prices is almost universal in the Southern cotton states, as well as on the New York Cotton Exchange, although a feeling of conservatism prevails which promptly checks any tendency of excited bulls to run away with prices. The course of values during the month has been almost constantly upward, both in contract and in spots. Buyers are finding it increasingly difficult to supply their needs in the interior, and are compelled to draw from port stocks, thus cutting down that source of supply. Another evidence of approaching exhaustion is the presence among late receipts of considerable frosted and stained cotton, indicating that the ends of the crop are coming in with the scrapings of the gins and fields. Indications from the best sources are favorable to the maintenance of the price of cotton at 10 cents and upwards for at least the next five years.

During the past week spot cotton has reached its highest point since 1874, when middling was quotable at 18 cents. All grades have advanced in proportion and the tone of the market at the high point was officially designated as firm. As compared with last year the present price of 15.25 cents represents a gain of 6 cents per pound. But the high price reached has not in the least checked the demand. On the contrary, it seems to have created renewed interest in the staple, the market being phenomenally active in nearly all parts of the country. The last week in January saw the largest movement in cotton from the spinner's standpoint that has been known during the present season, despite the fact that prices have been at a level scoffed at and which it was claimed could never be reached without seriously curtailing the amount of cotton consumed. Following are the prices of cotton middling upland spots at the leading ports:

	New York.	New Orleans.	Liverpool.
January 1	13.50 cents	13¼ cents	6 96*d.*
January 8	13.40 cents	13⅛ cents	7.06*d.*
January 15	13.80 cents	13 9/16 cents	7.50*d.*
January 22	14.75 cents	14 7/16 cents	8.00*d.*
January 27	15.25 cents	15 1/16 cents	8.20*d.*

The exceptionally high prices at which staple cotton has sold has been reflected in the goods market in such a way that the movement of cloth has been greatly impeded. Manufacturers of duck and sheeting have caused their prices to follow as closely in the wake of raw material as has been possible for them to do, and yet they contend that the advance in the price of their product still lags considerably behind the rapid and speculative upward jumps of the staple. Prices on all lines of cottons have been forced to what many consumers consider a prohibitive point, and yet so far as the rubber interests are concerned there has been a very fair demand for both ducks and sheetings. As nearly as can be estimated about two-thirds of the mechanical rubber manufacturers have placed their contracts for textiles. Last fall they commenced to cover their requirements for the year, at 19 cents per pound. Gradually this class of duck consumers became convinced that prices were upward inclined, and they ventured far enough to place their orders for fair sized quantities at prices ranging all the way from the above figure to 23 cents, those paying the last quotation being the ones who deferred the longest.

During the month under review the duck people have not been successful in convincing the remaining rubber manufacturers that they could save money by ordering quickly, and the result has been that these same concerns are still hanging fire on their supplies of textiles. Those who have exhausted their last year's supplies have been buying as they required the goods, paying from 24 to 25 cents per pound. Duck such as is consumed by the rubber trade is held to-day at the last mentioned figure, and the market is exceptionally firm at this basis, with prices most likely to advance from time to time. The writer was informed that the price of duck might touch 30 cents before the middle of February, but this information came from a seller. One consumer has cut away from the duck manufacturers, and has bought a number of looms with the view to weaving his own cloth. He intends to purchase his cotton yarn, but the fact that he has already turned down the spinners who have quoted him prices around 22 cents for such numbers as he asked for, leads to the belief that this rubber manufacturer still retains his bearish propensities. One mechanical rubber manufacturer visited the market a week ago, procured prices and went home. The next day he wired a New York commission house that he would place his order for 300 rolls at the price quoted him while here. The house wired back that the price had advanced a cent a pound since his visit.

The duck mills, are as a rule, running at full capacity, having covered on cotton sufficiently to fill contracts taken up to the first of the year. Of course the mills that are paying 15.50 cents for their staple are making a good price on that basis, and the same holds good with all classes of light-weight sheeting. As will be seen by the following table, some prices have not been advanced since our last issue:

PRICES CURRENT FOR SHEETINGS FOR THE RUBBER TRADE.

	Pick.	Yds. to Lb.	
36″ Household Favorite	56x60,	4.00	6¼ cents.
40″ Household Favorite	56x60,	3.60	7 cents.
36″ Henrietta, L. L.	48x52,	4.00	6 cents.
39″ Henrietta, H.	68x72,	4.75	(net) 5¾ cents.
38½″ Henriette, S.	64x64,	5.15	(net) 5¼ cents.
40″ Henrietta, P. W.	48x40,	2.85	7¼ cents.
36″ Florence C.	44x44,	6.15	4¼ cents.
40″ Majestic C. C.	48x48,	2.50	(net) 8½ cents.
40″ Majestic B. B. B.	do.	2.70	" 8 cents.
40″ Majestic B. B.	do.	2 85	" 7⅛ cents.
40″ Norwood	do	3 60	" 6⅛ cents.
36″ India, A. A. A.	do.	3 00	" 7¼ cents.

Sheetings.

40″ Highgate... 6¾c.
40″ Hightown...7 c.
40″ Hobart..... 7¼c.
40″ Kingstons...8 c.
39″ Stonyhurst...6 c.
39″ Sorosis.....5¾c.
40″ Seefeld.....8¾c.
40″ Selkirk.... 8 c.
40″ Sellew ..... 7¾c.
48″ Mohawk....11 c.
40″ Marcus. .. 6½c.
40″ Mallory.....6 c.
36″ Capstans....4½c.

Osnaburgs.

40″ Iroquois....10 c.

Ducks.

40″ 7 oz. Cranford. ...10 c.
40″ 8 oz. Chartres..... 10½c.
40″ 10 oz. Carew. 13 c.
40″ 11 oz. Carita. 14 c.

Felts have been in fair demand from the rubber footwear manufacturers, but quantities called for in most cases have not been as large as in former years, owing to the high prices ruling. Wools of every description have continued high, and every sign available at this writing points to a continuation of these prices. Manufacturers of every discription using wool have exercised the utmost conservatism, hoping that the market would be easier in which to operate later in the season, but as yet these hopes have not been realized. What effect the high prices of raw material is going to have upon rubber goods is causing some speculation.

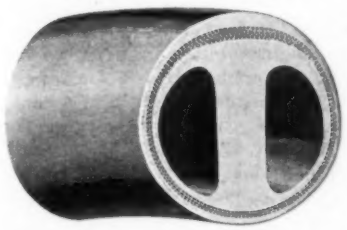
The belting concerns have been the strongest protesters against the high price of duck, on account of the large proportion of textiles required for their product.

Reports continue to arrive of results from experiments in British West Africa pointing to the possibility of an important extension of the world's cotton growing field.

NEW GOODS AND SPECIALTIES IN RUBBER.

A NON PUNCTURABLE PNEUMATIC TIRE.

THE cut herewith illustrates the cross section of a new punctureless and non collapsible pneumatic tire designed to meet the wants of a considerable number of persons whose experience with the ordinary pneumatic tire has not been wholly satisfactory. The tire embraces a central rubber core, and two air chambers. The rubber core lessens the danger of punctures to a minimum and overcomes entirely the danger of collapsing, as the tire runs upon the core. In case of the puncture of one of the air chambers, only that one can become deflated, and there still remains two-thirds of the tire to ride upon. Leakage around the lugs is prevented by the lugs being embedded in the central rubber core, entirely away from the air chambers. The tire is inflated by means of a single valve, which connects with each of the two chambers. This tire has been patented in several countries—the United States patent being No. 745,040, November 24, 1903—by Dr. T. J. Cooper, Paterson, New Jersey.

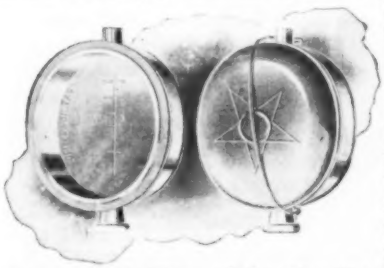


WILLIAMS NON SLIPPING TIRE.

AMONG the new features in tires exhibited at the recent cycle shows in England was Williams's patent "Uvula" rubber tire for motors, fitted to an open channel by means of a patent adjustable band and fastenings. A cushion tire with an uvula shaped buffer between the tread and the steel band; the band is passed through the bed of the tire clamped into the steel channel. In the event of the tire being damaged, a section can be cut out and a new piece inserted. A sectional view of the tire is illustrated herewith. The advantages of a pneumatic tire, with regard to resiliency, are claimed, with a superior degree of rigidity, greater durability, and freedom from creeping, rolling, or side slip. [The Williams Tyre Co., 4, Denman street, Piccadilly circus, W., London.]

"KLEEN INSIDE" NURSING BOTTLE.

THE difficulty of cleaning the inside of the ordinary nursing bottle, and keeping it clean, suggested to the inventor of the bottle illustrated herewith the idea of a milk receptacle, every part of which is easily accessible. It may be made in the shape of an ordinary flat oval nursing bottle—but it differs from all others in being made in two pieces, one side lifting off the other like the lid of a box. The joint is made tight by means of a rubber washer. The two sides are held together by a metal clamp that snaps on in a moment and can be removed instantly, though the spring is too strong for an infant's fingers to open. It is intended to retail at 25 cents. [Lee Anderson, No. 97 Chambers street, New York.]

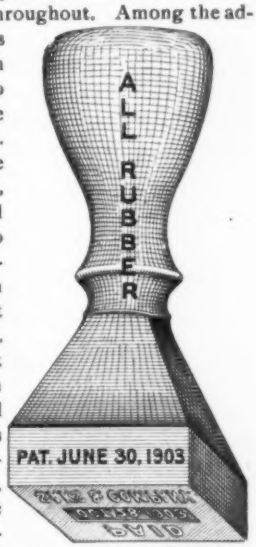


"DR. HALL'S MAGICAL SYRINGE."

A NEW spray syringe, patented in the United States September 1, 1903, has been placed upon the market under the name given above. The features in this contrivance claimed to be new are the changeable directions of the sprays from the nozzle. In fact, the entire novelty of the new construction is in the nozzle. For the rest, the syringe is an ordinary soft rubber bulb, attached directly to the hard rubber nozzle. There are no valves, no pistons, no rubber tubes; the whole construction is simple and there is no liability of any part to get out of order. At the end of the hard rubber tip, however, there is a movable nozzle which screws on to the end of the tip, and its position is reversible. When screwed on in one position it throws a radiating spray forward, and when screwed on in a reverse position, the spray is thrown backwards. The merit claimed for this appliance, giving as it does a douche both forward and backward, is that it is thoroughly cleansing in its effect. The syringe is also fitted with a shield of soft rubber, which prevents any leaking and adds to the convenience of its use. One more feature is that the construction of the syringe prevents the injection of air. [The Vant Woud Rubber Co., No. 88 Reade street, New York.]

"ALL RUBBER" STAMPS.

THIS is a new line of rubber stamps, made without the use of any metal or wood, but of rubber throughout. Among the advantages claimed for such stamps is their durability, as compared with other styles; their adaptation to rapid work and hard usage; and the production of uniformly good prints. If struck carelessly or quickly the impression is not spoiled or blurred, as the pressure is equalized and there is no rebound. The wear to stamps and noise of stamping is reduced. They will not break when dropped, and are claimed to outlast stamps mounted on rigid handles. Besides, they are light in weight and restful to the hand, which is an item of importance to railway postal clerks, for example, whose work is practically continuous for long periods of time. Patent No. 732,236, issued to Eugene M. Tilden, June 30, 1903. Leading stamp manufacturers have been licensed under the patent. [Lamb & Tilden, No. 525 Tenth street, N. W., Washington, D. C.]



NEWS OF THE AMERICAN RUBBER TRADE.

SALE OF THE WATKINSON SHOE FACTORY.

A CHANGE has taken place in the control of the Watkinson rubber shoe factory, at Philadelphia. The details of the bankruptcy of George Watkinson & Co. appeared in THE INDIA RUBBER WORLD February 1, 1902, including the appointment of the Provident Life and Trust Co., of Philadelphia, as trustee, and T. M. Etting, referee in bankruptcy. By recommendation of the creditors' committee, and under the authority of the court, the trustee, in connection with the Messrs. Watkinson, has since continued the plant in operation. It was thought that this course would best serve the interests of the creditors—not only by avoiding a sacrifice of the raw material and material in process, as well as of the manufactured goods, but, by earning the profits manifestly in the business, to save the expense and deterioration of an idle factory. It was also thought important to keep the business together—its organization, its prestige in the market, its connection with several thousand customers, in short, to preserve the good will intact. Most of the salesmen formerly employed were put on the road to solicit orders and the business was conducted very much in the usual manner. Steps were taken by the trustee to recover certain large amounts claimed by the bankrupts to be properly payable by Charles R. Flint, or Flint & Co., of New York, on notes given by the shoe firm for the alleged accommodation of the latter—these obligations having been the cause of the assignment. While it is understood that a good business has been done on the whole, in marketing the products of the factory, the business was unable to stand the strain of the large indebtedness with which the firm, in spite of all efforts, still found itself burdened, and a crisis in their affairs occured during the past month.

In pursuance of a call by Mr. Etting, the referee in bankruptcy, a meeting of the creditors was held in the United States circuit court room in Philadelphia, on January 13. This meeting was called to act upon an offer from an outside party to purchase the entire business. This offer was made by Charles MacVeagh, New York, and was understood to aggregate some $300,000 for the business and plant, without including the cash on hand or accounts receivable. It is understood that, at the same time, the Messrs. Watkinson made an offer of full settlement of the claims, by giving a series of notes to mature during several years. It was decided by the creditors that, before taking final action, a report by expert accountants would be desirable, and an adjournment was taken to January 21.

At the second meeting it was decided to accept the offer of Mr. MacVeagh, and on the next day application was made before Judge McPherson in the United States district court, by the Provident Life and Trust Co., as trustee, for permission to sell the property. The court granted the permission on the same day—January 22—since which time the details of making the transfer have been in progress. The published sale price of $135.322 evidently refers to the plant alone.

Charles MacVeagh is a director in the following corporations: American Steel Hoop Co., Bethlehem Steel Co., International Traction Co. (also secretary), and National Steel Co. At No. 15 Broad street, New York, his name appears on the office door of the legal firm of Stetson, Jennings & Russell, as connected with that firm. Mr. Francis Lynde Stetson, of this firm, by the way, is a director of the United States Rubber Co. When visited by a representative of THE INDIA RUBBER WORLD, Mr. MacVeagh said:

"I have no statement to make regarding the business of George Watkinson & Co. You will have to see my attorney, Mr. Samuel Norris, of Nos. 9 15 Murray street." [Mr. Norris is secretary of the United States Rubber Co., at the address given.]

No statement could be obtained from Mr. Norris, but President Samuel P. Colt said to THE INDIA RUBBER WORLD reporter, when asked if the United States Rubber Co. had acquired control of the Watkinson plant:

"That is a matter about which I am unprepared to make any statement at the present time. The plant was sold by order of court, on January 22, to Mr. Charles MacVeagh, a lawyer, but the United States Rubber Co. has not acquired the property as yet and whether it will or not remains to be seen."

"Mr. MacVeagh," it was suggested, "has stated all information would have to be given out at the office of the United Slates Rubber Co."

"Quite right!" exclaimed Colonel Colt; "but at the present time I can give you no definite information, further than that we know that Mr. MacVeagh has purchased the plant and that the sale has been confirmed by the court."

"Can you say what the price was, that Mr. MacVeagh paid?"

"Well there were many details and various prices in the transaction which could hardly be explained in a brief statement, but in round numbers it may be stated that the price was $300,000."

"Will Mr. Watkinson continue to manage the plant?"

"Well that is certainly beyond me," replied Colonel Colt. "I know nothing about Mr. Watkinson's plans, or who will manage the plant."

Mr. Watkinson also had no statement to make on this point, when seen by THE INDIA RUBBER WORLD'S Philadelphia reporter.

BANNER RUBBER CO. (ST. LOUIS).

A CIRCULAR issued from the office of the Monarch Rubber Co. (St. Louis, Missouri) announces the change in the name of that corporation to the Banner Rubber Co. This was the pioneer rubber manufacturing company in that region, having begun making rubber footwear about March, 1900. The circular sets forth the desirability of a change of name, in order to prevent the confusion of their business with that of certain other concerns. A report having got into print that the factory was passing under control of the United States Rubber Co., President Samuel P. Colt, of the latter company, was interviewed on the subject for THE INDIA RUBBER WORLD. He said:

"That is a matter about which I can say nothing at all. The United States Rubber Co. has nothing to say concerning the Banner Rubber Co."

Under date of January 28 the Banner Rubber Co. advised THE INDIA RUBBER WORLD:

"There is absolutely no truth in the report. Please publish our unequivocal denial."

NEW YORK RUBBER CO.—ANNUAL MEETING.

THE annual meeting of the stockholders of the New York Rubber Co. for the election of trustees was held January 26 at the office of the company, No. 84 Reade street, New York. The old trustees were reëlected and the place on the board made vacant by the death of Charles S. Sanxay was filled by the selection of John Acken, son of President W. H. Acken. The old officers were reëlected without change.

STANDARD UNDERGROUND CABLE CO., PITTSBURGH.

THE annual report of this company shows gross business for 1903 of $9,192,618, and net earnings of $704,438, or about 35 per cent. on the company's $2,000,000 capital. Dividends amounting to 12 per cent. were paid, leaving $474,706 to add to surplus, which now amounts to $1,229,112. The company's business for 1903 was more than double that of 1902. The company has no outstanding notes, mortgages, bonds, or preferred stock, and no contingent liabilities on business paper of customers. The mills of the company handled during 1903 copper equal to 5 per cent. of the total production of copper of North America for that period. On December 31, 1903, the company had unfilled orders amounting to over $1,000,000 and orders have been booked since that date amounting to over $600,000.

ANNUAL DINNER OF THE NEW ENGLAND RUBBER CLUB.

A PRELIMINARY notice has been issued to the members of the Club that arrangements have been made for the annual dinner on Wednesday, February 17, at which several distinguished citizens have promised to speak, including the Hon. William H. Moody, secretary of the navy, on "Our Navy"; Hon. David A. De Armond, congressman from Missouri, on "Civil Service"; Hon. Frederick H. Gillett, congressman from Massachusetts, on a subject to be announced later. Further particulars will be mailed later by the Entertainment and Dinner committees, but in order to facilitate the completion of the necessary arrangements, members are asked to assist by promptly advising Mr. E. E. Wadbrook, assistant secretary, No. 150 Franklin street, Boston, of their intention of being present, and also, if possible, the number of guests they expect to have. The preliminary notice is signed by L. D. Apsley, president of the Club, and Mr. Wadbrook, the assistant secretary.

THE COMBINATION RUBBER AND BELTING CO.

[See THE INDIA RUBBER WORLD, January 1, 1904—page 138.]

WILLARD P. CLARK, of New Brunswick, New Jersey, receiver for this company, on January 14 submitted a report at a meeting of the creditors at the office of F. W. Leonard, referee in bankruptcy, at Newark. The liabilities, as before stated, were reported at $286,284.52 and the assets at $97,231.87. All the 125 creditors have filed claims. It was the sentiment of those present that the concern might be extricated from financial difficulty if the business was continued. According to Mr. Clark, he had increased the assets $7,000 since he assumed the duties of receiver.

INTERNATIONAL RUBBER FACTORY FOR SALE.

THE receiver of the International Rubber Manufacturing Co. announces for sale or lease the plant of that company in Jersey City, New Jersey. The plant is well equipped for the manufacture of air brake hose, rubber tires, horseshoe pads, and the like, on which it has been run for the past two years. The factory has been operated since December by the receiver, in coöperation with a committee who desire to end their trust without dismantling the plant. Further details will be found in the advertising column of this Journal. The details of the receivership have appeared in our recent issues.

DECISION IN A SUIT OVER SYRINGE PATENTS.

THE suit of the Marvel Co. against The Tullar Co., in the United States circuit court in the southern district of New York, has been dismissed, in an order signed by Hoyt H. Wheeler, judge, December 8 last. This action was begun in May, 1901, the complainants, who had purchased from Eugene Tullar Pearl the rights to his invention known as the "Marvel" whirling spray syringe, suing for an injunction to restrain Tullar from selling an alleged infringing article under the name of the "Tullar" syringe. The defense was that the "Tullar" syringe was a later and distinct invention, and not an infringement on the original patent granted to Pearl and now controlled by the Marvel Co.

LECTURE COURSE IN A RUBBER FACTORY.

A NOVEL and progressive policy has been adopted by the management of a leading rubber factory in Canada, the nature of which may be best outlined, perhaps, by presenting here the full text of a circular issued recently by the company:

THE CANADIAN RUBBER CO., LIMITED.

MONTREAL, QUE., December 28, 1903.

OFFICE OF THE GENERAL MANAGER.

[Circular No. 16.]

TO ALL EMPLOYÉS: In order to inculcate more practical information to employés of the company, it has been decided that a series of weekly or semi-weekly lectures be given, commencing with the New Year. The following officers of the company have generously offered their services in this connection:

Mr. MCLAREN, subject, Chemistry.
Mr. MCEVOY, Mechanical Engineering.
Mr. THORNTON, Crude Rubber and Processes of Manufacture.
Mr. E. A. WRIGHT, Accounting and Financing.
Mr. D. L. MCGIBBON, System and Organization.

It is the desire of the management that all employés, and more especially the juniors, should attend regularly. The lectures will be strictly confined to practical information regarding the rubber industry, and will no doubt be of great assistance to any one anxious to acquire "Knowledge." Mr. A. D. Thornton, general superintendent, will supervise all details in connection with these lectures, and will issue a notice of the date and place of the first lecture.

D. LORNE MCGIBBON,
General Manager.

The lectures are to be given in one of the large rooms of the factory, suitable for the accommodation of all who may wish to attend. Mr. D. Lorne McGibbon, in his new position as general manager of the Canadian Rubber Co., has proved a very active man, and the new departure indicated above is an indication of the progressive spirit which he has displayed, and in which he is supported by an able staff of assistants, coupled with the organization of one of the oldest and most substantial rubber concerns in the country. Under his management the plant of the company is being completely reconstructed, and when it is finished will be one of the best rubber mills in existence.

THE WIRE AND CABLE CO. (MONTREAL.)

THIS company, with offices and works at No. 241 Grey street, Montreal, are manufacturing brass and copper wires, including copper wires for all electrical purposes, with insulation of rubber, paper, etc. It is understood that they contemplate the installation of rubber machinery, but at present they are buying compounded rubber from factories at Montreal and Toronto.

THIS SHOE COMPANY NOT IN COAL MINING.

THE Boston Rubber Shoe Co. was mentioned recently in the Boston newspapers as included in a number of manufacturing corporations in that city and its vicinity about to form a syndicate for the purpose of purchasing valuable coal lands in the New river section of West Virginia with the idea that it could mine coal and transport it to Boston cheaper than it can be purchased from the dealers. The purpose of the movement was stated to be to obtain coal at all times at cost prices and be independent of any combination that can raise prices of fuel, either because of a strike of miners or for any other reason. Colonel Harry E. Converse, one of the directors, informed an INDIA RUBBER WORLD correspondent that the Boston Rubber Shoe Co. would not be a party to the arrangement, since they could already procure all the coal they needed

at mine prices; he knew nothing about the details of the movement more than had appeared in the newspapers. It is understood, however, that the shoe company were among those solicited to join the syndicate.

DEFUNCT RUBBER CORPORATIONS.

A PROCLAMATION by the governor of New Jersey, under date of January 5, 1904, declares the charters of certain named corporations formed under the laws of that state to be void, on account of their failure to pay the corporation taxes assessed against them by the state for the year 1901. Following are the names of such concerns as were related to the rubber trade, together with further details in regard to some of them. Only one of the several corporations ever advanced to the point of doing business:

American Pegamoid Co., New York, incorporated December 17, 1897, capital $5,000,000; promoted by Joseph J. Byers, to exploit the "Pegamoid" patents in America.

Commonwealth Rubber Co., incorporated July 20, 1900, capital $50,000; to manufacture rubber goods; principal office, East Orange, N. J.

Ducasble Tire Co., Philadelphia, incorporated in March, 1900, capital $100,000; to manufacture in America the Ducasble tire, a French invention.

Frost Tire and Rubber Co., incorporated May 7, 1900, capital $200,000; to manufacture rubber goods; registered office, East Orange, N. J.

Hallanan "Humane" Rubber Pad and Horse Shoe Co., New York, incorporated in January, 1899, capital $250,000; to make rubber horseshoe pads.

Paar Double Cushion Horseshoe Co., incorporated June 5, 1899, capital $50,000; to manufacture double cushion horseshoes and a general line of horseshoes.

Pacific Rubber Co., Elizabeth, N. J., incorporated February 16, 1894, capital $30,000, to manufacture mackintoshes; receiver appointed in November, 1898, and the factory closed soon thereafter.

Paranite Rubber Co., incorporated May 10, 1900, capital $5000, "to prepare and manufacture and sell India-rubber and India-rubber products."

BENEDICT REIS IN BANKRUPTCY.

ELBERT B. HAMLIN has been appointed receiver in bankruptcy for the assets of Benedict Reis, who did business at No. 23 Lispenard street, New York, as the Neptune Rubber Co., manufacturing mackintoshes and raincoats. The business was conducted for several years at No. 295 Grand street as the Neptune Rubber Co. by Benedict Reis and Israel Suchman. The latter retired at the end of 1902; in April last the business was removed to Lispenard street; on November 26 it suffered a serious loss by fire. On January 2, 1904, Reis took Alexander N. Jacob into partnership, and on January 13, on the application of the latter, Isaac Lehman, No. 395 Broadway, was appointed receiver. It was then stated that Reis had been overcome by the strain of business troubles and his whereabouts were unknown. According to the receiver, the firm's assets are about $20,000 and the liabilities only a few hundred, though Reis's liabilities in his old business are believed to be large. The petition in bankruptcy against Reis, of January 20, alleges that he was insolvent and that he transferred all of the stocks and accounts of his old firm to the new, while the new did not assume the obligations of the old.

ELECTRICITY IN A GREAT PRINTING OFFICE.

TWENTY-ONE of the large pages of the *Electrical World and Engineer* (New York) are devoted to an illustrated description of the electrical equipment of the Government Printing Office at Washington, which is the largest printing office in the world. The government printing costs $6,500,000 yearly and makes work for over 4000 employés. Yet throughout the great seven story building—not counting basement and loft—175 × 408 feet, power and light and heat are supplied by means of electricity, through the application of the latest discoveries and improvements. The journal quoted says: "The contract for furnishing some of the wire and cables for the office was made with the Safety Insulated Wire and Cable Co. (New York), and amounted to over 100 miles of conductors, ranging in size from 1,000,000 cm. to No. 12 B. & S. gauge. The specifications were the most rigid that have ever been received by that company for inside wiring, Article 37 of the contract being as follows: 'All rubber wire, both stranded and solid conductors, shall have an insulation of seamless rubber compound, containing not less than 40 per cent. of pure Pará rubber, and shall show an insulation test of not less than 1200 megohms per mile; must be concentric and free from flaws and holes; must have a smooth surface and circular section.'"

NEW YORK STOCK EXCHANGE TRANSACTIONS.

UNITED States Rubber Co.:

DATES.	Common. Sales.	Common. High.	Common. Low.	Preferred. Sales.	Preferred. High.	Preferred. Low.
Week ending Dec. 26	455	10½	10⅛	200	39½	39½
Week ending Jan. 2	1,335	12¼	11	2,015	41⅞	39¾
Week ending Jan. 9	1,870	12	11¾	910	42½	41
Week ending Jan. 16	2,250	12½	10¾	1,685	43	41½
Week ending Jan. 23	5,985	13⅜	12⅛	6,010	50⅜	43¼

PREFERRED STOCK, $23,525,500.
Last Dividend, January 31, 1901—1 %.

	1900.	1901.	1902.	1903.
Shares sold	90,924	132,278	104,202	62,343
Highest price	104¾	85	64	58
Lowest price	77¾	47	49⅛	30¼

COMMON STOCK, $23,666,000.
Last Dividend, April 30, 1900—1 %.

	1900.	1901.	1902.	1903.
Shares sold	502,377	318,038	53,356	80,890
Highest price	44	34	19⅜	19⅛
Lowest price	21	12½	14	7

RUBBER Goods Manufacturing Co.:

DATES.	Common. Sales.	Common. High.	Common. Low.	Preferred. Sales.	Preferred. High	Preferred. Low.
Week ending Dec. 26	1,050	18	17½	310	72	71
Week ending Jan. 2	3,680	18¾	18	1,175	77	72½
Week ending Jan. 9	1,685	18⅜	17¼	....	...	....
Week ending Jan. 16	2,330	18½	17⅞	234	74¾	74¾
Week ending Jan. 23	18,380	21⅞	18¼	2,366	79¼	75

PREFERRED STOCK, $8,051,400.
Last Dividend, December 15, 1903—1¾ %.

	1901.	1902.	1903.
Shares sold	18,541	39,582	55,280
Highest price	90	74	84½
Lowest price	65	63	60

COMMON STOCK, $16,941,700.
Last Dividend, July 15, 1901—1 %.

	1901.	1902.	1903.
Shares sold	172,631	339,895	276,789
Highest price	38¼	25⅜	30
Lowest price	18	17¼	12

PHILADELPHIA BOUGHT FROM THE HIGHEST BIDDER.

THE Philadelphia *North American* has been publishing a series of articles indicating that, through favoritism in awarding contracts for supplies, the municipal authorities of that city have saddled the taxpayers with much unnecessary expense. In its issue for January 12 the *North American* says, in relation to rubber supplies:

A cursory glance over the schedule of bids for these goods for 1903 in the Controller's office shows a list of awards to a high bidder for nearly sixty articles of which rubber is a constituent part, as well as for a number of sizes of fire and suction hose, from which the possibility of competition was eliminated by a specification requiring particular brands of goods, which could be furnished by but one bidder.

Then follows the details of the bidding on a number of articles, showing that the awards were made regularly to one individual, although lower bids were made by several leading Philadelphia houses in the rubber goods trade. For fire and suction hose there was only one bidder—the agent for the brands specified. A table is given of other items—garden hose, steam packing, etc., for the department of public safety—where awards were made at an average of 71 per cent. over the lowest bids, and in a second table the average over the lowest bid was 95 per cent. It is intimated that under the new conditions which now prevail, wider competition will be permitted.

ANCHOR TIRE AND RUBBER MANUFACTURING CO.

THE company have found it necessary to increase their capital stock from $125,000 to $225,000, in order to purchase outright the real estate, buildings, and machines embraced in their plant at Setauket, Long Island. The company are just bringing their factory equipment to completion. They are adopting new machinery constructed for wrapping the insulation under the new process. The first and second insulation are in contrasting colors, enabling the operator to observe the application and detect any imperfections that may occur. The wrapping method is much more perfect and gives a better insulation than the tubing process, as the first and second insulation follow each other, and the output is fully double the tubing method, and much more uniform and reliable. The company will be pleased to correspond with the trade regarding their wire product.

NEW INCORPORATIONS.

U. S. AGENCY OF THE MICHELIN TIRE CO., January 23, 1904, under New York laws; capital, $30,000. Incorporators: Norris N. Mason, J. N. Marshall, J. J. Ackenman, all of New York city. Office, No. 132 West Twenty-seventh street, New York.

=The Reliance Rubber Co. (Akron, Ohio), January 13, 1904, under Ohio laws; capital $150,000. Incorporators: William Bailey, Wilber S. Bailey, George B. Spencer, W. J. Ellis, and W. J. Hart. It is understood that the company will establish a factory at Cuyahoga Falls, Ohio.

TRADE NEWS NOTES.

THE Indianapolis (Indiana) Rubber Co. are now devoting their factory almost exclusively to the manufacture of the "G & J" tires. They continue, however, to supply some customers of long standing with certain special lines of rubber goods, their trade in pump valves, for example, still remaining extensive.

=The New York-Broadway Rubber Tire Co. is the name under which the distribution of tires will be conducted in the New York district in the future by the Goodyear Tire and Rubber Co., with offices at No. 253 West Forty-seventh street, New York, and No. 1311 Bedford avenue, Brooklyn. The office at No. 127 Duane street, New York, will not longer be maintained.

=Messrs. James Boyd & Co., dealers in mechanical rubber goods, No. 14 North Fourth street, Philadelphia, as usual have distributed to their friends in the trade a calendar for the year, arranged with spaces for daily memoranda, one leaf for each week. There are also facts and figures of use for permanent reference.

=The Beacon Falls Rubber Shoe Co. (Beacon Falls, Conn.) have taken on the manufacture of tennis shoes, and are marketing a line branded "Reliance."

=The Sweet Tire and Rubber Co. (Batavia, New York) are mentioned as having made a recent shipment of a carload of their carriage tires to one customer. The Sweet rubber tire machine is also in good demand.

=The Diamond Rubber Co.'s Cincinnati office has been removed from No. 2103 South street to No. 1559 Gest street.

=The result of the sale of the property of the American Tubing and Webbing Co. (Providence, Rhode Island) was reported in the last issue of this Journal. As a result of the difficulties with which the receivers of the company have had to contend in adjusting the claims of creditors, a decree was entered on January 15, by the Rhode Island supreme court, making C. Frank Parkhurst master of chancery for consideration of the various claims.

=The Merchants Rubber Co.—William Morse, president—jobbers of rubber footwear and clothing, long established at No. 72 Reade street, New York, announce that after April 1 their address will be at No. 139 Duane street.

=Mr. Frank D. Voorhees, son of President Voorhees, of the Voorhees Rubber Manufacturing Co. (Jersey City), will be connected hereafter with the New York branch of the company, at No. 150 Nassau street, dividing his time between that office and the factory.

=The Stamford Rubber Supply Co. (Stamford, Connecticut) are thoroughly remodeling their plant, besides the erection of a two story office building adjoining their main factory. The alterations will greatly facilitate the handling of the company's business, in a manner more satisfactory even than hitherto.

=The Froehlich Rubber Refining Co. (Philadelphia), the incorporation of which was reported in THE INDIA RUBBER WORLD July 1, 1903, on January 22 made a general assignment for the benefit of creditors, to the Equitable Trust Co. The deed of assignment was signed by Morris Froehlich, president, and attested to by Katherine Stier, secretary.

=The annual meeting of the shareholders of the American Hard Rubber Co. will be held at the office, Nos. 9–13 Mercer street, New York, on Tuesday, February 9, at 3 o'clock P. M.

=The *Mexican Herald* mentions the presence in the City of Mexico of a Mr. Green, traveling for a Boston rubber manufacturing company, who has been making trips out of that city into various parts of the republic.

=A young woman employed as cashier in the New York downtown branch of the Hartford Rubber Works Co., was arrested recently on a charge of having been a defaulter to a considerable amount. Manager R. P. Parker told the magistrate that he felt sure that the prisoner had been of good character, and had fallen under bad influences. The magistrate remarked, as he released the prisoner, that he thought the exposure and consequent suffering to her family had been punishment enough.

=The annual Sportsmen's Show this year at Madison Square Garden, New York, will be held from February 19 to March 5. It is probable that quite a display of bicycles will be made, together with other goods involving a greater or less use of rubber.

=Harry H. Shepard, manager of the National India Rubber Co. (Bristol, Rhode Island), and Frank Fish, foreman of the hosemaking department, have been granted a patent on the manufacture of hose. It consists in bringing the ends of two separately vulcanized hose sections together upon a mandrel extending into the end of each, then applying a splicing strip overlapping both said ends, and subsequently vulcanizing said splice and expelling the mandrel by fluid pressure.

=The factory at Chiltonville, Massachusetts, formerly operated by the Colonial Rubber Co., and now used by a Boston mechanical goods concern as a rubber reclaiming plant, was damaged by fire on January 16, to an extent reported at $15,000 The loss was covered by insurance. The principal structure was saved.

=Mr. R. M. Howison, of Howison & Co., London, is now on his annual visit to the States, his address being in care of R. E. Hofer, No. 112 Water street, Boston. Mr. Howison's firm are sole European agents for the Pennsylvania Rubber Co. (Jeannette, Pa.) and a specialty is made of tires and heel pads.

=The Philadelphia Rubber Works, the extensive rubber reclaiming concern, issue a circular requesting the trade to be exact in writing the name of the company, and to address them at No. 2419 South street, Philadelphia. It is mentioned that another company has a somewhat similar name, and there has been some confusion in the delivery of letters. Later the Philadelphia Rubber Works filed a suit against the other company referred to, the Philadelphia Rubber Co., to have them restrained from doing business under that name in the city.

=The Fawkes Rubber Co. (Denver), who are exploiting the Fawkes vehicle tire—now being manufactured for them at Cudahy, Wisconsin—have filed with the secretary of state of Colorado a certificate of increase of capital stock from $50,000 to $500,000.

=The plant of the new Atlantic Rubber Shoe Co. (Providence, Rhode Island) is reported to be practically complete, and the rubber footwear trade is in expectation of seeing the product of the factory on the market very soon.

INFRINGEMENT OF A TIRE PATENT ALLEGED.

SUIT was filed on January 18 in the United States circuit court at Pittsburgh, Pennsylvania, by the Rubber Tire Wheel Co. against the Continental Rubber Works, of Erie, Pa., and Theron R. Palmer, Alexander Jarecki, Charles Jarecki, and Charles S. Coleman, directors in the latter company, alleging infringement of a rubber tire patent. An injunction to prevent the defendants from making further use of the patent and damages are asked for.

THE STREAT PATENT IN COURT AGAIN.

JOHN C. WEBB of Boston brought suit in the United States circuit court in that city against Joseph J. Goldsmith, *et al.* (the Harvard Rubber Co.), to recover $20,000 damages for alleged infringement of the George Streat patent (No. 260,063—June 27, 1882) relating to the manufacture of waterproof clothing. Webb based his suit upon an assignment, by Streat, after the patent had expired, of all claims for infringement by the defendants. Judge Brown, on January 21, in sustaining a demurrer filed by the defendants, held that Webb could not maintain an action for damages for patent infringement, as he was not a "patentee, assignee, or grantee" within the meaning of the statutes.——Streat's patent claims were (1) two fabrics so cemented together with waterproof rubber cement that "the compound material rendered waterproof without materially increasing the thickness" and (2) a *sewed* garment made of the same. In 1899 Streat filed suits against several manufacturers of mackintoshes, alleging infringement of his patent, but we have no record that any of these were followed up to a successful conclusion.

THE NEW COLORADO RUBBER.

RICHARD A. LEIGH, formerly connected with some of the leading mechanical rubber goods factories in the East, is mentioned by the Colorado newspapers as general superintendent of the Western Rubber Co., organized recently at Denver [See THE INDIA RUBBER WORLD, December 1, 1903—page 98] to extract rubber from the roots of a shrub growing wild in that region. Judging from the Colorado newspapers some people there are growing wild over the prospects of wealth from this new source, but Mr. Leigh's friends will wish him success in his new connection. Mr. Leigh, by the way, has become greatly improved in health during his residence in the West.

THE WHITMAN & BARNES SOUVENIR.

A PARTICULARLY handsome picture, entitled "Sheep in the Highlands," is being distributed by the Whitman & Barnes Manufacturing Co. from their general office, One Hundred and Twentieth street, Chicago. As the title indicates, the scene is laid in the mountains of Scotland. The animals are grouped in the foreground and are at rest. The leader, a big black fellow, stands on guard. In the distance may be seen a winding river and on either side of the animals tower high mountains. Floating clouds and a misty atmosphere tend to soften as well as bring out the beauty of the landscape. The picture is an exact copy in colors from the original painting, now the property of the company, executed by the famous Scotch artist W. Watson. The picture, 19″ × 28½″, bears no advertisement, and will be sent by mail to any address upon receipt of 50 cents.

ARRIVAL OF "BABETTE."

THE annual New Year's souvenir of The B. F. Goodrich Co. (Akron, Ohio) has reached THE INDIA RUBBER WORLD and is one of the most attractive that enterprising concern has ever issued. It is the head of a beautiful girl, done in excellent imitation of oil painting. The subject is "Babette," and the picture is a fitting companion to "Kate," "Dorothy," and the others on the list.

PERSONAL MENTION.

ARTHUR CORBIN GOULD, the founder and editor of *Shooting and Fishing*, of New York, who died on December 15, was a brother of Henry A. Gould, long prominent as a crude rubber merchant. The journal referred to has existed for twenty years, and in addition to editing it, Mr. Gould wrote several volumes on rifles and other arms, which gained for him reputation as an authority and led him to be consulted by military men, manufacturers of arms, and sportsmen, both at home and abroad.

=Mr. Charles R. Flint delivered an address before the chamber of commerce of Rochester, New York, on the evening of January 7, on "The United States; a Commercial World Power." The address was a strong plea for freer international trade. Mr. Flint said that while there is a growing sentiment in England in favor of retaliatory tariffs, there was reason to believe that country "would unite with the United States in working out the best industrial condition for the world at large—the free right to make, buy, and sell. As the bricks are taken off the top of the tariff walls, and they should be removed gradually, exchange of products will increase."

=Mr. W. F. Bowers, of the Bowers Rubber Co. (San Francisco), spent the holidays in his native city—Lynn, Massachusetts—where he arrived in time to be present on December 22, at the golden wedding of his parents, Mr. and Mrs. Wilder T. Bowers. Their ages are 80 and 73 years, respectively, and both have resided all their lives in Lynn. Mr. Bowers recently retired from business after a continuous connection for 52 years. ——Mr. W. F. Bowers reports very active trade conditions on the Pacific coast, the rubber houses having done a good business throughout last year.

=Mr. John H. Flint, treasurer of the Tyer Rubber Co., has recently been elected president of the Andover (Mass.) Savings Bank. This financial institution, which has deposits of about $3,500,000, is one of the largest and strongest in that locality. From its incorporation in 1835, until his retirement from active business in 1870, Mr. John Flint, father of the newly elected president, was treasurer of this bank.

=Workmen are tearing down the walls of the plant of the India Rubber Co., which was destroyed by fire in March last. The property has been purchased by a Pittsburgh company which will erect a plant for the manufacture of cutlery.

AMERICAN RUBBER GOODS EXPORTS.

OFFICIAL statement of values of exports of manufactures of India-rubber and Gutta-percha, for the month of December, 1903, and for the past five calendar years:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
December, 1903....	$ 80,273	$100,516	$ 235,801	$ 416,590
January-November.	777,361	890,835	2,276,179	3,944,375
Total, 1903.....	$857,634	$991,351	$2,511,980	$4,360,965
Total, 1902.....	738,257	1,065,592	2,011,905	3,815,754
Total, 1901.....	608,116	974,018	1,743,882	3,326,616
Total, 1900.....	528,382	721,085	1,559,049	2,808,516
Total, 1899. ...	(a)270,069	327,139	1,475,380	2,081,588

(a) Included in "All Other" prior to July 1, 1899.

IMPORTS INTO THE UNITED STATES.

	1901.	1902.	1903.
India-rubber goods.....	$462,703	$562,997	$682,982
Gutta-percha goods.....	121,485	121,123	442,580
Total.....	$581,188	$684,120	$1,125,562
Reëxports.....	14,288	4,655	8,624
Net Imports...	$566,900	$679,465	$1,116,938

AMAZON STEAM NAVIGATION CO.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The directors of the Amazon Steam Navigation Co., Limited, at their meeting to-day, have declared a half yearly dividend on account of the current year of 2 per cent. or 5 shillings per share, free of income tax, payable on and after January 5, 1904. Also that the transfer books of this company will be closed from Saturday, December 19, to January 2, 1904, both days inclusive.

G. STREET & CO., LTD.

30, Cornhill, E. C., London, December 19, 1903.

THE Hon. Charles Foster, of Fostoria, Ohio, and president of the Pan-American Planters' Co., a rubber planting enterprise in Mexico, with offices in Chicago, died on January 10. He had served eight years as a member of congress from Ohio, two terms as governor of the state, and had been secretary of the treasury in President Harrison's cabinet.

MR. MAXWELL F. RIDDLE, treasurer of the Republic Development Co., and manager of the Obispo rubber plantation at Tuxtepec, Oaxaca, Mexico, has returned to the plantation.

A CONTEST having arisen between the Chicago city railway companies and their employés over the right of the latter to wear membership badges of their union while on duty, at a meeting of the Chicago Federation of Labor a resolution committing that body to the support of the railway employés was adopted, on motion of William T. Dunn, of Chicago Local No. 1, Amalgamated Rubber Workers' Union of America. Officials of the railway state that their attitude is due to the fact that employés not wearing the union badge have been attacked, and that rows over it have caused three deadly assaults and one death.

REVIEW OF THE CRUDE RUBBER MARKET.

THE price of Pará rubber is again on a dollar basis, as a result of an advance which has been gradual for the whole month past, though it was accentuated by the result of the recent large sale at Antwerp. The average advance for the month of the Pará grades on which quotations are given below was fully 12 per cent. A marked advance has been made also in Africans, amounting to an average of 7 per cent. on the grades listed in our report. The rise has been somewhat less on Centrals and East Indians, but all told the advance has been more general and more decided than is often to be recorded in a single month.

There is less talk at this time than was to be heard at the end of last summer about the influence of speculative manipulation of the market. It is generally considered that prices declined to too low a figure in December last, in view of the statistical position of the market and the activity of the manufacturers. The easing of prices at that time was the effect both of a reaction from the extreme high figures of September, and of reports of an increasing output from the Amazon region. The early prediction of a larger crop of Pará grades has been confirmed, our figures showing heavier receipts thus far at Pará than for the same date in the season in any preceding year. Stocks are exceptionally low, however, in all markets, and buying is active.

In the United States no previous winter has shown such continuous operation of the rubber shoe factories, or on so large a scale. The manufacturers of automobile tires have a busy season before them, in spite of assertions by some of our correspondents on another page that they were beginning the year with a season of comparative quiet. The manufacturers of mechanical goods in general are also busy, having recovered from the slightly reduced demand for goods which they reported during the last weeks of 1903.

The consumption of rubber in the United States during last year was very much larger than during the preceding year, and the rate is not less now. Furthermore, the increased consumption in Great Britain, Germany, and France combined was equal to or greater than in the United States for the same period. The arrivals at Pará (including Caucho) have been:

	1900-01.	1901-02.	1902-03.	1903-04.
To December 31... ...	11,300	13,630	12,250	13 470
" January 31.....	13.740	16,490	14,650	a 16,730

[a—To January 27, 1904.]

Following is a statement of prices of Pará grades, one year ago, one month ago, and on January 30—the current date:

PARA.	Feb. 1. '03.	Jan. 1, '04.	Jan. 30.
Islands, fine, new..... ..	83@84	90@ 91	99@100
Islands, fine, old.....	88@89	@	@
Upriver, fine, new.....	86@87	93@ 94	104@105
Upriver, fine, old..... ...	91@92	96@ 97	None here
Islands, coarse, new	53@54	55@ 56	64@ 65
Islands, coarse, old....	@	@	None here
Upriver, coarse, new.....	71@72	76@ 77	83@ 84
Upriver, coarse, old....	@	@	85@ 86
Caucho (Peruvian) sheet.....	56@57	61@ 62	64@ 65
Caucho (Peruvian) ball.....	69@70	72@ 73	75@ 76

The market for other sorts in New York on which the advance has been rather less marked, is as follows:

AFRICAN.		CENTRALS.	
Sierra Leone, 1st quality	90 @91	Esmeralda, sausage	72 @73
Massai, red.....	90 @91	Guayaquil, strip.....	62 @63
Benguella.	72 @73	Nicaragua, scrap	72 @73
Cameroon ball.....	65 @66	Panama, slab.....	55 @56
Accra flake.....	35 @36		
Accra buttons	None here		
Lopori ball, prime....	90 @91		
Lopori strip, prime....	81 @82		
Ikelemba..... ...	90 @91		
Madagascar, pinky....	82 @83		

Mexican, scrap	71	@72	EAST INDIAN.		
Mexican, slab	52	@53	Assam	80	@81
Mangabeira, sheet	57	@58	Borneo		@

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	6$100	Upriver, fine	7$150
Islands, coarse	3$300	Upriver, coarse	5$250

Exchange, 12 1/32d.

Last Manáos advices (January 28):

Upriver, fine	7$200	Upriver, coarse	5$100

Exchange, 12 1/32d.

NEW YORK RUBBER PRICES FOR DECEMBER (NEW RUBBER).

	1903.	1902.	1901.
Upriver, fine	93@98	80@91	85@87
Upriver, coarse	76@81	65@73	65@66
Islands, fine	88@94	74@88	79@81
Islands, coarse	54@57	49@60	48@51
Cametá, coarse	54@57	54@61	50@51

In regard to the financial situation, Albert B. Beers, (broker in India-rubber, No. 58 William street, New York) advises us:

"During January the money market has eased very much, and the demand for commercial paper has improved, rates having dropped from 7 per cent. for the best rubber paper to 5½ @6 per cent. for such, and 6@6½ per cent. for the names not so well known."

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium.	Coarse.		Total 1903.	Total 1902.	Total 1901.
Stocks, November 30...*tons*	32	0	=	32	171	535
Arrivals, December	1032	470	=	1502	1322	1019
Aggregating	1064	470	=	1534	1493	1554
Deliveries, December	1008	470	=	1478	1421	1070
Stocks, December 31	56	0	=	56	72	484

	PARÁ.			ENGLAND.		
	1903.	1902.	1901.	1903.	1902.	1901.
Stocks, Nov. 30...*tons*	195	155	410	370	1200	885
Arrivals, December	3185	2990	3545	1100	785	1241
Aggregating	3380	3145	3955	1470	1985	2126
Deliveries, December	3010	2780	3805	925	1100	827
Stocks, Dec. 31	370	365	150	545	885	1299

	1903.	1902.	1901.
World's visible supply, December 31....*tons*	2979	3188	4432
Pará receipts, July 1 to December 31	12,540	11,576	12,689
Pára receipts of Caucho, same dates	960	694	946
Afloat from Pará to United States, Dec. 31	908	855	1078
Afloat from Pará to Europe, December 31	1100	1011	1120

United States Crude Rubber Imports.

[OFFICIAL STATEMENT.]

FROM—	1901.	1902.	1903.
United Kingdom...*pounds*	6,802,372	7,604 134	8,556,972
Germany	1,832,558	2,379,353	2,176,346
Other Europe	9,400,127	7,220,369	9,245 077
Central America	1,247.517	1,062,184	1,133,814
Mexico	267,565	263,181	286,260
West Indies and Bermuda	42,844	47,335	16,286
Brazil	33.719,709	30,504,703	31,950,915
Other South America	1,336,131	1,230,902	1,759,904
East Indies	455,870	509,609	612,345
Other countries	38,117	29,467	6,201
Total...*pounds*	55,142,810	50,851,257	55,744,120
Value	$28,120,218	$25,158,591	$35,152,642
Average Value per pound	50.9 cents.	49.4 cents.	63.1 cents.

Gutta-Percha.

WEISS & Co. (Rotterdam) report exports from Singapore for the first eleven months of five years past as follows:

	1899.	1900.	1901.	1902.	1903.
Tons	6568	5740	5214	3898	3018

Bordeaux.

R. HENRY favors us with details from which has been compiled the statements following:

CAOUTCHOUC ARRIVALS FOR 1903.

Soudan...*kilos*				679,455
Twists	78%	Niggers	22%	
Cassamance				149,972
A	45%	A M	30%	
B	20%	C	5%	
Conakry				147,010
Lahou and Bassam				60,980
Lumps	40%	Cakes	40%	
Twists	10%	Niggers	10%	
Congo				51,200
Mayumba	20%	Nyanza	40%	
Other sorts	40%			
Mexico and Colombia				3,070
Java				2,250
Madagascar				3,710
New Caledonia				350
Total...*kilos*				1,097,997
Total, 1902				664,900
Total, 1901				348,000

ARRIVALS BY MONTHS, 1903 (IN KILOS)

January	63,142	May	103,820	September	103,500
February	94.950	June	63,200	October	68,300
March	121,300	July	49,965	November	97,470
April	97,300	August	150,400	December	84,650

PRICES FOR 1903—FRANCS PER KILO.

	Minimum.	Maximum.
Conakry niggers, red, prime	8.25@8.50	10.50@10 70
Soudan niggers, prime	8. @8.25	9 50@10.15
Soudan twists	7.55@7.75	9 50@ 9.75
Cassamance, A	6 90@7.	7.80@ 7.90
Cassamance, A. M	6.30@6.40	7. @ 7.10
Cassamance, B	5.50@5.60	6.10@ 6.30
Bassam lumps	4.95@5.	6.50@ 6.65
Bassam—Lahou cakes	4.85@6.90	7.30@ 8.45
Madagascar—Tamatave		9. @ 9.50
Madagascar—Majungs		6.75@ 7.75
Madagascar—niggers		5.25@ 6.25
Mayumba	4.25@4.50	6.70

London and Liverpool.

S. FIGGIS & Co. (London) favor us with their annual review of the rubber market for 1903. In their last annual report they noted the falling off in Medium sorts—*i.e.*, other than Pará grades. The past year has shown increased arrivals of these, but the increase in consumption still leaves reduced stocks.

They estimate a total output of **Africans** of 11,920 tons, against 9839 tons in 1902. *Benguela* shows 1450 tons against 560; *Loanda*, 980 tons against 705; *Congo* sorts, 5600 tons against 5300. Considerable increase from *Gold Coast*, *Accra*, *Lagos*, etc., with only fair receipts from *Cameroons*, *Sierra Leone*, *Gaboon*, etc., and very small receipts from *Senegal*. Greatly increased supplies from *Soudan*; *East Coast Africa* about average; *Nyassaland* rather more; *Lamu* fair supply. More from *Madagascar*.

Ceylon sent much more; very nice thin sheet from Pará seed sold well, also scrap negrohead sold readily, and clean soft Ceará strips. Cultivation should be encouraged, as we can consume what can be produced. We have seen small lots grown from Pará seed in *Malay States*

Rubber Scrap Prices.

NEW YORK quotations—prices paid by consumers for carload lots—in cents per pound; again no change of importance to be noted:

Old Rubber Boots and Shoes—Domestic	6⅞	@	7
Do —Foreign	6¼	@	6⅜
Pneumatic Bicycle Tires	4	@	4⅛
Solid Rubber Wagon and Carriage Tires	7		
White Trimmed Rubber	8¾	@	9
Heavy Black Rubber			4¼
Air Brake Hose	2⅛	@	2¾
Fire and Large Hose			2
Garden Hose			1½
Matting			1

of nice quality and well liked. Imports should be encouraged. It sells very readily on basis of Ceylon prices.

East Indies.—*Rangoon* sent more; also *Penang*. *Borneo* moderate supply and not readily sold. *Indo China* sold better, and better liked.

Balata.—*Block* in fair supply; first eight months prices firm and up to 2*s.* 1½*d.*; during later months stocks have accumulated and prices are lower; nominal value now 1*s.* 8½*d.* *Sheet* supply has increased during the year, and has sold well, but prices are now lower; spot value of Pile I is 2*s.* 4*d.*

Gutta Percha.—There has been very little doing during the year. Stocks have been firmly held, but demand is very slow and prices all round are lower.

ENGLAND'S IMPORTS FOR THE YEAR.

Pará sorts.....*tons*	10,630	Madagascar.....*tons*	83
Peruvian.....	2,216	Rangoon and Assam.....	88
Mollendo.....	148	Penang and Borneo.....	101
Central American, Ceará, and Pernambuco	1,798	Penang.....	296
African.....	3,890	Various.....	1
Zanzibar and Mozambique	213	Total.....	19,464

EDMUND SCHLUTER & CO. (London and Liverpool) have favored us with their chart of "Annual India-Rubber Statistics" for 1903, showing not only the fluctuations in prices of the leading grades, but also the London and Liverpool stocks of rubber of all kinds at the end of each month, not only for 1903 but for the four years preceding. There is given also a detailed statement of the visible supplies of Pará rubber at the end of each month since the beginning of 1899. The chart is mounted for convenient use in the counting house of the rubber man.

MESSRS. HECHT, LEVIS & KAHN, India-rubber merchants, of London and Liverpool, announce the admission to their firm, as a partner, from January 1, of Mr. Robert Kahn.

EDWARD TILL & Co. [December 31] report stocks:

		1903.	1902.	1901
LONDON	Pará sorts.....*tons*	—	—	—
	Borneo.....	32	55	144
	Assam and Rangoon.....	4	2	52
	Other sorts.....	224	175	442
	Total.....	260	232	638
LIVERPOOL	Pará.....	546	894	1302
	Other sorts.....	630	456	854
	Total, United Kingdom.....	1436	1582	2794
	Total, December 1	1185	2083	2525
	Total, November 1.....	866	2464	2802
	Total, September 1.....	1364	2731	2736
	Total, August 1.....	1781	3053	2944
	Total, July 1.....	2285	3595	3128
	Total, June 1	2248	3687	3502

PRICES PAID DURING DECEMBER.

	1903.	1902.	1901.
Pará fine, hard..	3/10¾@4/1	3/4¼@3/10	3/7
Do soft.....	3/ 9¾@3/11	3/1½@3/ 8¼	3/ 4¼@3/6¼
Negroheads, scrappy..	3/ 2¾@3/3½	2/9 @3/ 1	2/ 7 @2/9
Do Islands..	2/ 4½@2/5	2/1½@2/ 6½	2/ 0½@2/1
Bolivian	4/-	3/7 @3/10	3/7¼@3/9

Lisbon Rubber Receipts.

[*Reported by* MARTIN WEINSTEIN & Co.]

	1899.	1900.	1901.	1902.	1903.
Benguella niggers.....*tons*	1879	1614	1460	648	1556
Loanda niggers.....	885	678	754	803	1051
Congo thimbles.....	264	206	145	95	126
Other sorts.....	30	48	71	85	109
Total.....	3058	2546	2430	1631	2842

Antwerp.

TO THE EDITOR OF THE INDIA RUBBER WORLD: We entered the year with a stock of 611 tons—or 47 tons less than last year. Imports during the year just closed were as follows:

Congo sorts..	5180 tons,	against	4993 tons	in	1902.
Other sorts.....	546 "	"	411 "	"	"
Total.....	5726 "	"	5404 "	"	"

Consequently there is practically no change in the quantities exported from the Congo, in spite of improved facilities for reaching the seaboard.

The next large sale here will take place on January 29, when about 693 tons—mainly Congo sorts—will be exposed. Among the more important lots will be the following, with the brokers' estimations:

Tons.	Francs	Tons.	Francs.
31 Lapori I.....	9.10	22 Aruwimi.	8.15
26 Lapori II.....	7.	12 Kasai red I.....	10.07½
28 Upper Congo ball.....	9.40	15 Kasai—Loanda... ..	9.30
13 Wamba thimbles, red....	4.	31 Kasai—Sankuru.....	8.80
72 Uelé strips.....	8.50	16 Kasai black I.....	9.50
24 Mongalla strips.....	9.15	7 Equateur I.....	9.50

There are included also some 12 tons of French Congo rubber; about 5 tons Benguella sorts; 19 tons Mozambique, and 3 tons Madagascar.

No sale of importance has occurred since December 16, as reported in these pages. C. SCHMID & CO., SUCRS.

Antwerp, January 15, 1904.

[FROM reports which have reached us through other channels it appears that the prices realized at the above sale were far above what New York rubber men, at least, had expected. As a result, the amount of the rubber sold that was secured for American consumption was much less than had been counted on. It is stated that one New York house, that instructed its Antwerp correspondent to bid on 125,000 pounds at an advance of 5 cents per pound over December prices, failed to secure any of the rubber.——On another page will be found the annual review of the Congo rubber situation by Messrs. Grisar & Co., of Antwerp.]

ANTWERP IMPORTS OF RUBBER.

YEAR.	Congo State.	Other sources.	Total.
1896.....*kilos*	1,106,375	9,500	1,115,875
1897.....	1,557,861	121,293	1,679,154
1898.....	1,734,305	280,286	2,014,591
1899.....	2,992,414	410,416	3,402,880
1900.....	4,902,003	796,032	5,698,035
1901.....	5,417,456	431,746	5,849,202
1902.....	4,992,954	411,031	5,403,985
1903.....	5,180,401	546,082	5,726,483

COMPARATIVE PRICES—EXTREMES.

[*In Francs per Kilogram.*]

GRADES.	1901.	1902.	1903.
Kasai, red, I..	8.25-9.	7.50 -8.75	8.75-10.75
Equateur, I.....	7.25-8.50	6.80 -8.75	8.75-10.32½
Lopori, I.....	7.25-8.50	6.80 -8.75	8.75-10.32½
Uelé	6.85-7.45	5 42½-8.15	8.15-10.15
Aruwimi.....	5.50-7.50	5.10 -8.15	8.15-10.15
Upper Congo, ordinary..	7.10-7.90	6 65 -7.05	7.95-10.20
Lower Congo, thimbles..	2.80-4.02½	1.70 -4 25	4.25-6.00
*Fine Pará.....	3*s.* 6½*d.*-3*s.* 10*d.*	2*s.* 11½*d.*-3*s.*	3*s.* 8*d.*-4*s.* 8½*d.*

[* In English money, per Pound.]

[10 Francs per Kilogram=87½ cents per Pound.]

ANTWERP RUBBER STATISTICS FOR DECEMBER.

DETAILS.	1903.	1902.	1901.	1900.	1899.
Stocks, Nov. 30.*kilos*	680.142	185,961	843,301	1,064,646	179,778
Arrivals, December.	638.158	799,236	204,920	170,135	319.351
Congo sorts	599,945	760,150	182,525	151,726	269,879
Other sorts	38,213	39,086	22,395	18,409	49,472
Aggregating....	1,318,300	985,197	1,048,221	1,234,781	499,129
Sales, December....	707,400	327,092	633,512	620,742	207,138
Stocks, Dec. 31..	610,900	658,105	414,709	614,039	291.991
Arrivals since Jan. 1	5,726,483	5,403,985	5,849,202	5,698,035	3,402,880
Congo sorts	5,180,401	4,992,954	5,417,456	4,902,003	2,881,596
Other sorts.	546,082	411,031	431,746	796,032	521,284
Sales since Jan. 1...	5,773.688	5,160,589	6,048 442	5,375,987	3,374,229

RUBBER ARRIVALS AT ANTWERP.

DEC. 30.—By the *Albertville*, from the Congo:

Société A B I R		*kilos*	73,000
Comptoir Commercial Congolais			1,000
Bunge & Co	(Société Générale Africaine)		184,300
Do	(Société Anversoise)		41,300
Do	(Société "La Kotto")		2,000
Do	(Sultanats du Haut Obangi)		25,500
Société Coloniale Anversoise	(Cie. du Kassai)		54,000
Do	(Cie. de Lomami)		12,000
Do	(Belge du Haut Congo)		6,000
Comptoir des Produits Coloniaux			1,600
Do	(Cie. de la N'Goko)		4,600
Do	(Cie. des Produits de la Sangha)		300
Do	(Cie. de Ekela & Kadei Sangha)		9,700
Charles Dethier	(La Haut Sangha)		25,000
M. S. Cois			1,200
Do	(Société Baniembe)		1,100
Do	(Société L'Ikelemba)		400
Société Equatoriale Congolaise			1,000
W. Mallinckrodt & Co	(Alimalenne)		11,400
Cie. Commerciale des Colonies			500 455,900

Rotterdam Rubber Statistics.

[*Supplied* by WEISS & Co.]

INDIA-RUBBER ARRIVALS (KILOS).

Thimbles, red	99,000	Soudan	66,600
Congo ball	15,500	All other	13,200
Kassai, red	146,600		
Kassai, black	43,200	Total, 1903	799,300
Upper Congo	370,300	Total, 1902	991,700
Sierra Leone	19,900	Total, 1901	853,250
Mozambique	9,400	Total, 1900	877,450
Java and Sumatra	15,600	Total, 1899	804,750

	1904.	1903.	1902.	1901.	1900.
Stocks, January 1	64,000	8,100	67,300	80,600	38,900

BALATA ARRIVALS (KILOS).

	1903.	1902.	1901.	1900.	1899.
Surinam sheet	281,000	244,500	211,950	161,600	95,200
Venezuela block	22,000	30,700	31,450	23,500	52,200
Total	303,000	275,200	243,400	185,100	147,400
Stocks, end year	3,700	.....	.....	.....	5,000

GUTTA-PERCHA (TONS).

	1903.	1902.	1901.	1900.	1899.	1898.
Stocks first of year	218	263	185	307	180	130
Arrivals during year	148	267	314	280	495	265
Aggregating	366	530	499	587	675	395
Sales during year	172	312	236	402	368	215
Stocks end of year	194	218	263	185	307	180

Rubber Production of Para State.

WE are again able to present some details of the production of rubber in the state of Grão Pará, as distinguished from that derived from sources up the Amazon, but included in the statistics of shipments from Pará. The figures here relate (1) to the total arrivals at Pará during the last three calendar years, (2) to the share which was produced in Pará state, and (3) the percentage of the total produced in Pará—the figures including Caucho:

	Total.	Pará State.	Per cent. Pará.
1901 *tons*	29,930	9,866	32.9 %
1902	28,620	10,566	36.9 %
1903	31,090	*a* 11,017	35.4 %

[*a* Arrivals for June, 1903, estimated by us at 500 tons.]

The interest which these figures have for the trade is the indication which they afford of the permanence of the *Hevea* rubber supply. Pará state, it will be remembered, was the district in which this kind of rubber was first gathered, and for a long time was the sole source of supply. Later, when Upriver rubber came into the market, from the regions tributary to Manáos, an impression prevailed that the exploiting of new fields was due to the exhaustion of rubber in the Pará or "Islands" district. This, however, is not the case; more rubber was needed, and the rubber field has been widened. But the state which was first to yield *Hevea* rubber, and the one in which the forests have been longest worked, is now yielding more than ever before. During the last six months the arrivals in market from Pará state compare with the same period of the three preceding years as follows:

	1900.	1901.	1902.	1903.
Tons	5521	6149	5295	6403

The state of Pará of late has begun the export of Caucho, the arrivals in market having increased from 66 tons in 1901 to 142 tons in 1902 and 366 tons in 1903. During the last six months arrivals of Caucho amounted to 98 tons, against 64 tons in the same period of 1902 and 4 tons in July-December, 1901.

These new supplies of Caucho are drawn from the river Tapajoz, where the development first began, and more largely from the Tocantins. Our Pará correspondent reported in July last: "From the latter river we shall not have any supplies for some months to come, due to low water, but from the Tapajoz there are always shipping facilities." If the same rate of increase should be shown by the Tocantins this spring as during the past two years, several hundred tons of Caucho should come out with the rise of the river.

Rubber Receipts at Manaos.

DURING December and the first six months of the crop season for three years [courtesy of Messrs. Witt & Co.]:

From—	December.			July-December.		
	1903.	1902.	1901.	1903.	1902.	1901.
Rio Purús *tons*	588	467	468	2201	1915	2339
Rio Madeira	336	166	279	1544	1300	1610
Rio Juruá	553	337	408	1435	789	1593
Rio Javary—Iquitos	375	441	290	1445	995	885
Rio Solimões	160	324	275	466	922	1047
Rio Negro	105	109	66	154	199	95
Total	2117	1844	1786	7245	6120	7569
Caucho	428	185	280	900	600	1096
Total	2545	2029	2066	8145	6720	8665

THE firm Witt & Co. underwent a change at the end of the year. The old firm was composed of Nicoláo Henrique Witt, Cezar José de Figueiredo, and José de Figueiredo, with an interest held by the Para house of Frank da Costa & Co. The firm as reconstituted consists of N. H. Witt and Waldemar Scholz.

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weights in Pounds.*]

January 2.—By the steamer *Benedict*, from Manáos and Pará:

Importers.	Fine.	Medium.	Coarse.	Caucho.	Total.
A. T. Morse & Co	188,500	24,400	166,000	1,400=	380,300
Poel & Arnold	131,000	27,500	42,800	10,200=	211,500
United States Rubber Co.	83,600	17,800	10,100	24,700=	136,200
New York Commercial Co.	62,500	11,100	12,900	.....=	86,500
William Wright & Co	13,800	1,700	19,000	100=	34,600
G. Amsinck & Co	14,900	3,100	5,700	600=	24,300
Lionel Hagenaers & Co.	20,200	.....	2,700	.....=	22,900
Edmund Reeks & Co.	4,100	.....	.....	7,300=	11,400
Hagemeyer & Brunn	4,400	1,700	900	.... =	7,000
Thomsen & Co	5,500	400	1,400	.... =	7,300
Total	528,500	87,700	261,500	44,300=	921,000

January 11.—By the steamer *Dunstan*, from Manáos and Pará:

New York Commercial Co.	236,100	68,300	62,600	... .=	367,000
A. T. Morse & Co	185,200	29,400	65,500	... .=	280,100
United States Rubber Co.	76,300	20,400	52,400	67,600=	216,700
Poel & Arnold	100,100	16,000	41,500	3,800=	161,400
William Wright & Co	11,400	1,100	34,200	.....=	46,700
Hagemeyer & Brunn	11,900	.....	2,800	.....=	14,700
Lionel Hagenaers & Co.	9,600	.....	2,800	.....=	12,400
Total	630,600	135,200	261,800	71,400=	1,099,000

January 19.—By the steamer *Seguranca*, from Mollendo:

	Fine.		Coarse.	Caucho.
Chicago Bolivian Rub. Co.	23,000	.....	2,200	.....
Flint & Co	.....	.....	.....	8,300

January 23.—By the steamer *Grangense*, from Manáos and Pará:

Poel & Arnold	180,600	46,400	80,600	7,100=	314,700
United States Rubber Co.	129,700	26,600	73,200	37,600=	267,100
A. T. Morse & Co.	89,200	17,300	167,700	.....=	274,200
New York Commercial Co.	40,900	51,100	146,400	.....=	238,400
William Wright & Co.	39,000	3,600	35,500	....=	78,100
Czarnikow, McDougal & Co	30,600	6,500	1,100	.....=	38,200
Lawrence, Johnson & Co.	10,700	2,500	2,500	.....=	15,700
Lionel Hagenaers & Co..	15,500	.....	3,300	.....=	18,800
Hagameyer & Brunn.....	10,200	1,900	2,400	.....=	14,500
Samuels, Hermanos & Cummings.....	3,800	.....	3,800	.....=	7,600
Total	550,200	155,900	516,500	44,700=	1,267,300

[NOTE.—The steamer *Basil*, due at New York on February 1, has on board 675 tons of Rubber and 35 tons of Caucho.]

PARA RUBBER VIA EUROPE.

None Reported.

OTHER ARRIVALS AT NEW YORK

CENTRALS.

DEC. 28.—By the *Comus*=New Orleans:

	POUNDS.	
A. T. Morse & Co	1,500	
Eggers & Heinlein	500	2,000

DEC. 29.—By the *Allianca*=Colon:

Smithers, Nordenholt & Co	4,400	
Livingstone & Co	3,900	
E. B. Strout	2,200	
Meyer Hecht	2,500	
L. N. Chemedlin & Co	2,500	
Harburger & Stack	1,000	
E. Steiger & Co	1,000	
A. N. Rotholz	600	
For Brussels	3,200	21,300

DEC. 29.—By *Valencia*=Greytown, etc:

G. Amsinck & Co	9,000	
E. B. Strout	1,600	
Andreas & Co	500	
Kunhardt & Co	1,300	
Isaac Brandon & Bros	1,300	
Isaac Kubie & Co	1,000	14,700

DEC. 31.—By the *Alene*=Savanilla:

Hierapolis & Co	11,000	
Roldan & Van Sickle	500	
Graham, Hinkley & Co	1,000	
Isaac Brandon & Bros	600	
Bartling & De Leon	400	13,500

DEC. 31.—By the *Thespis*=Bahia:

J. H. Rossbach & Bro	18,500	
Hirsch & Kaiser	18,000	36,500

JAN. 4.—By the *Proteus*=New Orleans:

A. T. Morse & Co	6,000	
Manhattan Rubber Mfg. Co	3,000	
A. N. Rotholz	3,000	12,000

JAN. 5.—By the *Yucatan*=Colon:

Hirzel, Feltman & Co	19,000	
G. Amsinck & Co	15,200	
Dumarest & Co	3,300	
Livingstone & Co	2,500	
Meyer Hecht	2,600	
Piza, Nephews Co	2,300	
A. Santos & Co	2,000	
Mecke & Co	1,900	
E. B. Strout	1,600	
American Trading Co	1,400	
Isaac Brandon & Bros	1,500	
Roldan & Van Sickle	1,000	
Silva Bussenius & Co	1,100	
H. Marguardt & Co	1,100	
Lawrence Johnson & Co	900	
Eggers & Heinlein	800	
Andreas & Co	700	
Kunhardt & Co	700	
Lanman & Kemp	500	
E. Scheitlind Co	500	
R. G. Barthold	200	
E. Steiger & Co	300	
Graham, Hinkley & Co	300	
Samuels & Cummings	200	
A. D. Straus & Co	200	61,600

JAN. 11.—By the *Comus*=New Orleans:

Eggers & Heinlein	2,500	
A. T. Morse & Co	2,500	5,000

JAN. 12.—By the *Yumuri*=Mexico:

George A. Alden & Co	10,800	
H. Marquardt & Co	2,500	
E. N. Tibbals' & Co	200	
Samuels & Cummings	100	13,400

JAN. 12.—By the *Allegheny*=Carthagena:

Isaac Brandon & Bros	3,300	
American Trading Co	700	
For Hamburg	1,500	5,500

JAN. 13.—By the *City of Washington*=Colon:

G. Amsinck & Co	8,200	
Hirzel, Feltman & Co	8,000	
Meyer Hecht	4,000	
Isaac Brandon & Bros	2,000	
L. N. Chemedlin & Co	2,000	
Smithers, Nordenholt & Co	1,000	
National Sewing Machinery Co	800	
For Brussels	4,200	30,200

JAN. 19.—By the *Seguranca*=Colon:

Hirzel, Feltman & Co	16,000	
G. Amsinck & Co	14,500	
Meyer Hecht	6,000	

CENTRALS—Continued.

E. B. Strout	4,500	
American Trading Co	3,100	
Roldan & Van Sickle	3,000	
D. A. De Lima & Co	2,600	
Livingstone & Co	2,600	
Dumarest & Co	3,900	
L. N. Chemedlin & Co	1,700	
A. Santos & Co	1,400	
Frame & Co	1,200	
Lawrence Johnson & Co	1,200	
De Sola Lobo & Co	800	
R. G. Barthold	600	
Isaac Brandon & Bros	600	
Kunhardt & Co	400	
J. Menendez & Co	300	64,400

JAN. 19.—By the *Virgil*=Bahia:

J. H. Rossbach & Bros	16,000	
Hirsch & Kaiser	13,000	29,000

JAN. 20.—By the *Siberia*=Greytown:

E. B. Strout	2,000	
Andreas & Co	500	2,500

JAN. 20.—By the *Armenian*=Liverpool:

Eggers & Heinlein		7,000

JAN. 23.—By *El Cid*=New Orleans:

A. N. Rotholz	7,500	
George A. Alden & Co	4,500	12,000

AFRICANS.

	POUNDS.	
DEC. 26.—By the *Cedric*=Liverpool:		
Gorge A. Alden & Co	15,000	
A. T. Morse & Co	14,000	
Poel & Arnold	33,000	62,000
DEC. 28.—By the *Etruria*=Liverpool:		
A. T. Morse & Co	14,000	
Poel & Arnold	7,000	
United States Rubber Co	7,000	28,000
DEC 31.—By the *Majestic*=Liverpool:		
A. T. Morse & Co	35,000	
United States Rubber Co	20,000	
Joseph Cantor	7,500	62,500
JAN. 2.—By the *Pennsylvania*=Hamburg:		
A. T Morse & Co	15,000	
Henry A. Gould Co	3,000	18,000
JAN. 6.—By the *Ivernia*=Liverpool:		
George A. Alden & Co	11,500	
A. T Morse & Co	7,000	
William Wright & Co	7,000	
Earle Brothers	6,500	32,000
JAN. 8.—By the *Vaderland*=Antwerp:		
George A. Alden & Co	118,000	
A. T. Morse & Co	15,000	
Rubber Trading Co	6,000	139,000
JAN. 8.—By the *Georgian*=Lisbon:		
United States Rubber Co		158,000
JAN. 11.—By the *Celtic*=Liverpool:		
A. T. Morse & Co	24,000	
Poel & Arnold	18,000	
William Wright & Co	10,000	52,000
JAN. 11.—By the *Peninsular*=Lisbon:		
George A. Alden & Co		45,000
JAN. 11.—By the *St. Andrews*=Antwerp:		
Joseph Cantor		56,000
JAN. 11.—By the *Umbria*=Liverpool:		
Poel & Arnold	14,000	
George A. Alden & Co	11,500	
A. T. Morse & Co	10,000	35,500
JAN. 11.—By the *Patricia*=Hamburg:		
A. T. Morse & Co	18,000	
Rubber Trading Co	2,000	20,000
JAN. 14.—By the *Teutonic*=Liverpool:		
United States Rubber Co	7,000	
A. T. Morse & Co	8,000	
Rubber Trading Co	2,000	17,000
JAN. 16.—By the *Lucania*=Liverpool:		
George A. Alden & Co	35,000	
Poel & Arnold	35,000	
United States Rubber Co	25,000	
William Wright & Co	5,000	100,000
JAN. 20.—By the *Turcoman*=Antwerp:		
A. T. Morse & Co	18,000	
Joseph Cantor	35,000	
Rubber Trading Co	10,000	
Robinson & Tallman	9,000	72,000

AFRICANS—Continued.

JAN. 21.—By the *Amsterdam*=Rotterdam:

A. T. Morse & Co		22,000

JAN. 20.—By the *Kroonland*=Antwerp:

A. T. Morse & Co		30,000

JAN. 23.—By the *Cedric*=Liverpool:

A. T. Morse & Co	34,000	
United States Rubber Co	11,000	
Earle Brothers	3,500	48,500

EAST INDIAN.

	POUNDS.	
JAN. 11.—By the *New York*=London:		
Poel & Arnold	31,000	
A. T. Morse & Co	1,000	32,000
JAN. 18.—By the *Seneca*=Singapore:		
Robert Branss & Co	25,000	
Poel & Arnold	16,000	
William Wright & Co	11,000	
Rubber Trading Co	20,000	72,000
JAN. 25.—By the *Richmond Castle*=Singapore:		
To order	22,500	
Poel & Arnold	9,000	
William Wright & Co	15,000	
Rubber Trading Co	4,500	51,000

PONTIANAK.

JAN. 18.—By the *Seneca*=Singapore:		
William Wright & Co	250,000	
J. H. Recknagel & Co	60,000	
Heabler & Co	150 000	
George A. Alden & Co	55,000	515,000
JAN. 25.—By the *Richmond Castle*=Singapore:		
William Wright & Co	520,000	
Poel & Arnold	145,000	
Robert Branss & Co	90,000	
Heabler & Co	55,000	810,000

GUTTA-PERCHA AND BALATA.

	POUNDS.	
JAN. 2.—By the *Pennsylvania*=Hamburg:		
To order		8,000
JAN. 11.—By the *Patricia*=Hamburg:		
To order	13,500	
Earle Brothers	2,500	16,000
JAN. 25.—By the *Richmond Castle*=Singapore:		
Poel & Arnold		8,000

BALATA.

DEC. 31.—By the *Maracaibo*=Trinidad:		
G. Amsinck & Co	1,000	
George A. Alden & Co	500	1,500
JAN. 7.—By the *Piemonte*=Trinidad:		
George A. Alden & Co	9,000	
Eggers & Heinlein	1,000	10,000
JAN. 11.—By the *Patricia*=Hamburg:		
George A. Alden & Co		2,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—DECEMBER.

	POUNDS.	VALUE.
Imports:		
India-rubber	4,631,067	$3,023,564
Gutta-percha	14,800	3,641
Gutta-jelutong (Pontianak)	767,037	21,661
Total	5,412,904	$3,048,866
Exports:		
India-rubber	126,720	$ 88,779
Reclaimed rubber	95,115	10,898
Rubber Scrap Imported	1,333,081	78,349

BOSTON ARRIVALS.

	POUNDS.
DEC. 15—By the *Vaderland*=Antwerp:	
George A. Alden & Co.—African	118,197
DEC. 22.—By the *Columbian*=London:	
George A. Alden & Co.—East Indian	8,557
DEC. 22.—By the *Vaderland*=Antwerp:	
George A. Alden & Co.—African	63,777
DEC. 29.—By the *Sagamore*=Liverpool:	
George A. Alden & Co.—African	4,736
Total	195,267

[Value, $135,676.]

DECEMBER EXPORTS OF INDIA-RUBBER FROM PARA (IN KILOGRAMS).

EXPORTERS.	UNITED STATES.					EUROPE.					TOTAL
	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	
Adelbert H. Alden	145,275	40,982	84,015	—	270,272	97,380	4,086	27,200	13,549	142,215	412,487
Frank da Costa & Co.	40,210	4,584	154,092	—	198,886	139,374	9,434	48,032	—	196,840	395,726
Cmok, Schrader & Co.	—	—	57,280	—	57,280	187,340	13,260	73,220	14,216	288,036	345,316
Neale & Staats	2,352	336	37,920	—	40'608	46,200	5,376	1,324	70	52,970	93,578
J. Marques & Co.	12,277	457	2,503	—	15,237	12,003	869	2,670	—	15,542	30,779
Denis Crouan & Co.	8,457	675	2,868	—	12,000	—	—	13,933	—	13,933	25,933
B. A. Antunes & Co.	2,720	984	1,792	312	5,808	14,960	2,950	1,188	—	19,098	24,906
Pires, Teixeira & Co.	18,622	—	3,303	—	21,925	—	—	—	—	—	21,925
Singlehurst Brocklehurst & Co.	—	—	—	—	—	15,363	3,745	2,323	—	21,431	21,431
R. Suarez & Co.	—	—	—	—	—	12,433	2,117	150	—	14,700	14,700
Sundry small shippers	—	—	2,539	—	2,539	2,848	387	509	—	3,744	6,283
Direct from Iquitos	1,937	—	—	3,642	5,579	152,616	8,743	61,190	155,556	378,105	383,684
Direct from Manáos	637,943	134,728	108,848	54,940	936,459	377,333	79,801	94,279	64,073	615,486	1,551,945
Total for December	869,793	182,746	455,160	58,894	1,566,593	1,057,850	130,768	326,018	247,464	1,762,100	3,328,693
Total for January-Nov.	6,378,270	1,466,099	4,538,916	1,101,475	13,484,760	8,088,442	7,035,588	2,321,413	2,819,897	14,265,340	27,750,100
TOTAL SINCE JANUARY 1.	7,248,063	1,648,845	4,994 076	1,160.369	15,051.353	9,146,292	1,166,356	2,647.431	3,067.361	16.027,440	31,078,793

EXPORTS OF INDIA-RUBBER FROM MANAOS DURING 1903.

BY COURTESY OF WITT & CO. [WEIGHTS IN KILOGRAMS.]

EXPORTERS.	NEW YORK.					LIVERPOOL.					HAVRE AND HAMBURG.					TOTAL.
	FINE.	MEDIUM	COARSE.	CAUCHO.	TOTAL.	FINE.	MEDIUM	COARSE.	CAUCHO.	TOTAL.	FINE.	MEDIUM	COARSE.	CAUCHO.	TOTAL.	
Dusendschön & Co.	1,364,822	439,326	393,147	328,246	2,525,541	1,646,523	217,638	323,150	650,551	2,837,862	319,227	37,394	33,724	46,430	436,775	5,800,178
Witt & Co.	1,300,261	267,154	268,397	376,971	2,212,783	728,578	62,834	134,795	249,406	1,175,613	68,067	3,382	7,221	7,320	80,990	3,469,386
A. H. Alden	1,309,592	269,925	306,971	79,849	1,966,337	350,290	56,919	57,566	105,519	570,294	16,000	5,440	—	—	21,44[illegible]	2,558,071
Neale & Staats	442,669	106,409	114,696	63,659	726,432	207,566	33,647	49,258	111,913	402,284	32,960	2,240	3,960	—	39,160	1,167,876
Reeks & Astlett	463,661	70,838	99,848	179,882	754,229	11,458	344	2,490	106,179	120,468	—	—	—	—	—	874,697
J. H. Andresen, Succs.	45,920	10,400	8,230	24,583	89,133	440,048	158,718	111,033	75,641	785,440	59,280	11,795	16,182	1,100	88,357	962,930
B. A. Antunes & Co.	55,840	8,640	10,440	24,760	99,680	152,000	32,462	28,054	12,423	224,939	—	—	—	—	—	324,619
Kahn, Pollack & Co.	—	—	—	—	—	33,253	5,533	5,595	3,028	47,409	116,912	16,906	32,327	3,681	169,916	217,325
Denis Crouan & Co	69,337	12,932	16,156	6,829	105,854	20,260	3,550	3,229	9,430	36,469	10,820	3,810	7,680	6,660	28,970	171,293
Brocklehurst & Co.	13,563	2,607	2,430	—	18,560	60,229	9,365	13,084	53,097	135,775	—	—	—	—	—	154,335
Marius & Levy	—	—	—	10,400	10,400	15,488	3,337	4,198	37,870	60,891	15,580	4,221	3,455	50,988	74,164	145,455
B. Bockris	2,210	510	1,190	154	4,064	3,230	1,310	2,032	1,150	7,722	27,000	5,360	11,194	1,287	44,841	56,627
Mello & Co.	21,590	3,080	6,120	—	30,770	39,440	8,160	8,460	—	56,060	—	—	—	—	—	86,830
Sundry Shippers	82,701	36,052	25,388	3,642	147,763	64,700	8,024	13,944	15,562	102,231	126,627	14,222	22,707	99,422	262,978	512,972
Iquitos, Transit	—	—	—	—	—	336,959	26,931	136,059	586,845	1,086,794	242,894	28,628	83,483	331,078	686,083	1,772,877
TOTAL, 1903.	5,112,756	1,226,853	1,252 992	1,098,975	8,691,576	4,110,018	628,672	892 947	2,018,614	7,650,251	1,030,367	133,488	221,933	547,886	1,933,674	18,275,501
Total, 1902.	3,76[illegible],079	1,045,578	1,011,049	1,073,623	6,893,339	3,607,184	741,369	789,593	1,297.112	6,435,208	303,486	191,740	299,530	519,792	1,814,548	15,143,095

OFFICIAL STATISTICS OF CRUDE INDIA-RUBBER (IN POUNDS).

UNITED STATES.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
November, 1903	4,374,505	325,175	4,049,330
January-October	46,494,340	2,958,223	43,536,117
Eleven months, 1903	50,868,845	3,283,398	47,585,447
Eleven months, 1902	46,007,428	3,060,589	42,946,839
Eleven months, 1901	50,096,293	3,478,559	46,617,734

GREAT BRITAIN.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
November, 1903	4,406,864	2,658,880	1,747,984
January-October	44,926,000	32,337,424	12,588,576
Eleven months, 1903	49,332,864	34,996,304	14,336,560
Eleven months, 1902	42,921,648	29,848,448	13,073,200
Eleven months, 1901	47,629,792	29,943,536	17,686,156

GERMANY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
November, 1903	2,546,500	636,020	1,910,480
January-October	28,516,400	9,751,500	18,764,900
Eleven months, 1903	31,062,900	10,387,520	20,675,380
Eleven months, 1902	30,089,840	12,643,400	17,446,440
Eleven months, 1901	26,237,640	10,042,780	16,194,860

ITALY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
November, 1903	65,120	22,000	43,120
January-October	1,286,120	126,720	1,159,400
Eleven months, 1903	1,351,240	148,720	1,202,520
Eleven months, 1902	1,409,540	107,360	1,302,180
Eleven months, 1901	1,317,580	207,020	1,110,560

FRANCE.*

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
November, 1903	2,172,280	1,061,940	1,110,340
January-October	13,195,820	7,619,040	5,576,780
Eleven months, 1903	15,368,100	8,680,980	6,687,120
Eleven months, 1902	14,144,460	9,111,300	5,033,160
Eleven months, 1901	14,525,060	9,071,360	5,453,700

AUSTRIA-HUNGARY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
November, 1903			
January-October	2,400,420	22,660	2,377,760
Eleven months, 1903			
Eleven months, 1902	2,396,900	12,540	2,384,360
Eleven months, 1901	2,371,380	25,080	2,346,300

1904.

TAL

12,487
95,726
15,316
93,578
10,779
25,933
24,906
21,925
21,431
4,709
6,283
3,684
31,945

28,693
50,100

78,793

	TOTAL.
5	5,800,170
0	3,469,394
4	2,558,071
0	1,167,830
	874,697
7	962,980
	324,619
6	217,335
0	171,290
	154,905
4	148,456
1	86,627
	84,630
8	512,873
3	1,772,677
4	18,275,581
8	15,148,033

PORTS.

,984
,576

,560
,200
,156

ORTS.

,120
,400

,520
,180
,560

ORTS.

,760

,360
,300